Believe-type matrix verbs and their complements

Corpus-based investigations of their functions in discourse

A collection of articles

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Introduction

0. Preamble

This volume is a collection of eight articles (with one exception, all written versions of conference papers or talks) that, at the point of writing this introduction, have either already been published or have been accepted for publication. They are not merely thematically related, but subsequent papers build on previous ones. As a result, and because they were written so that they could be read independently of each other, there is a fair amount of overlap between them, especially in their introductions. So as not to add to this overlap, and to avoid making all the points made in the individual papers at the outset, this general introduction will be kept to a minimum.

These are the eight articles in their order of publication:

• 1997 ‘The choice between infinitives and that-clauses after believe.’ English Language and Linguistics 1, 2: 271-284.
• 1998 ‘The proof of the pudding: is prove to be/that like believe to be/that?’ In Johan van der Auwera, Frank Durieux and Ludo Lejeune (eds.) English as a Human Language. München: Lincom Europa. 264-273.
• 2003 ‘Is there semantics in all syntax? The case of accusative and infinitive constructions vs. that-clauses.’ In Günther Rohdenburg & Britta Mondorf (eds.) Determinants of Grammatical Variation in English. (Topics in English Linguistics). Berlin: Mouton de Gruyter. (to appear early 2003)
• 2003 ‘The be said to construction in Late Modern English.’ In Aline Remael & Katja Pelsmaekers (eds.) Configurations of Culture. Leuven: Garant. (to appear mid-2003)

This is not the order in which they were written, nor is it the sequence in which they will be presented as chapters of this volume. In section 5 of this introduction I will motivate their arrangement in chapters, justifying why this deviates from the chronology of their conception as well as their publication.
Before I move on to this, however, I will first describe which very specific area of English grammar this collection zooms in on (section 1) and which questions it tries to answer with relation to it (section 2). I will also say something about the methodological approach which the problem areas dealt with seem to call for (section 3) and about the descriptive frameworks that appear most suited to provide sensible answers.

1. Research subject: believe-type matrix verbs and their complements

Believe-type verbs, as they are often called, are those members of the verbal lexicon that share a) the syntactic characteristic of displaying the alternation between a finite clausal complement and an NP+to-infinitival clausal complement, or a so-called accusative and infinitive, as illustrated in the construed sentences (1) and (2) below, and b) the semantic characteristic that their (active) subjects say, think, perceive or show something to be the case of the subject of the complement (though, as is made clear in chapters 6 and 7, such a semantic characterization often does not hold in cases like (2b) where there is no active subject).

(1) Mary believes that John is an alien.
(2) a. Mary believes John to be an alien.
   b. John is believed to be an alien.

So far I have been able to identify well over a hundred verbs that answer both parts of this description, both on the basis of lists provided by others (Francis, Hunston and Manning 1996; Hudson 1971; Levin 1993; Postal 1974; Rohdenburg 1993) as well as through my own detection work in the British National Corpus.¹ They are listed in (3).

(3) accept, acknowledge, adjudge, adjudicate, admit, affirm, allege, announce, appreciate, argue, ascertain, assert, assume, assure, attest, avow, believe, calculate, certify, claim, compute, concede, conceive, conclude, confess, confirm, conjecture, consider, contend, credit, decide, declare, decree, deduce, deem, demonstrate, deny, determine, discern, disclose, discover, doubt, dream, emphasize, establish, estimate, expect, explain, expose, fancy, fear, feel, figure, find, gather, grant, guarantee, guess, hazard, hold, hope, hypothes-

¹ A good way to find ‘new’ ones, i.e. ones that others have not listed, is to use CD-ROM versions of dictionaries which include the facility to search the definitions. For instance, if we look up believe in the Macmillan English Dictionary for Advanced Learners, we find the definition ‘to have an opinion about what is true or what might happen, although there is no proof’. Starting from this definition we can look for verbs with a similar meaning, and possibly a similar syntax, by searching the definitions of the dictionary for words like opinion or true. The verbs that turn up in the search results can then be checked against a corpus to see if they allow both a that-clause and an accusative and infinitive. Members of the class I identified in this way are appreciate, assure, attest, conjecture, contend, credit, doubt, expect, expose, hazard, hope, indicate, profess, project, pronounce, purport, suggest, trust, witness.
size, imagine, imply, indicate, infer, intuit, judge, know, make out, notice, observe, posit, postulate, predict, presume, presuppose, proclaim, profess, project, pronounce, prove, purport, realize, reckon, recognize, recollect, remember, report, represent, repute, reveal, rule, rumour, see, sense, show, specify, state, stipulate, suggest, suppose, surmise, suspect, swear, take, think, trust, understand, verify, wager, warrant, witness

There are, of course, other verbs that take both a *that*-clause and an NP plus infinitive, for instance *advise, ask, beg, caution, command, direct, instruct, order, ...*, but these need a different semantic characterization. When these verbs alternate the finite with the infinitival complement, the subject of the matrix verb tries to get the (active) subject of the complement to do something. Such verbs are not considered in the investigations compiled here.

### 2. Research questions: their functions in discourse

The studies collected in this volume do not concern themselves with syntax in the narrow sense of the word. The reader will look in vain for syntactic tests or deep structures that distinguish *believe*-type verbs from other types of verbs. Nor shall we be concerned with modelling the language user’s intuitions about the relationship between the finite and infinitival complements of *believe*-type verbs, or with arguing questions like whether the subject of the infinitival verb is or is not also an object of the matrix verb. Perfectly legitimate as they may be, such worries are not very relevant when, like the present author, one is interested in the role these matrices and their complements play in discourse. The rich treatment *believe*-type verbs have received in the branch of linguistics usually called ‘formal/formalist’ or ‘generative/generativist’ will for that reason not be reviewed. Relevant ‘functional/functionalist’ work will, of course, be discussed where appropriate.

The eight studies in this volume are all concerned with either or both of two sets of ‘functional’ questions:

1. Given that language users have a choice between a finite and a non-finite complement after *believe*-type verbs, what determines their decision to use the one or the other? Is the choice semantically determined, i.e. do *believe*-type matrices plus infinitives convey a different meaning than *believe*-type matrices plus *that*-clauses? Or can both patterns be said to be synonymous and do other factors than semantic ones determine their use?

2. It is an empirical fact that the infinitival complement occurs much more often with a passive matrix (2b) than with an active one (2a). Why is this so? The passive is of course a useful device a) to rearrange the word order of a sentence so as to give it a contextually appropriate information/thematic structure, and b) to leave the ‘actor’ of

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2 For an overview of recent opinion in generative linguistics on the sentential complementation of *believe*-type verbs, amongst others, see Rooryck (1997).
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a process out of the picture, but that in itself does not explain why a normally marked choice should be the unmarked option in the case of matrices preceding accusative and infinitives. So can information/thematic structure be invoked to account for the high frequency of these passive matrices? And how could the possibility offered by the passive to leave a participant unmentioned contribute to its frequency in this case?

In the process of answering these questions about the why of this particular area of grammatical variation the investigations reported on will also add descriptive detail to our knowledge about various aspects of its range. Which members of the verbal lexicon can be classified as believe-type verbs? Which passive matrices are most often combined with infinitives? What is their distribution across different discourse genres? Have they always been equally popular?

3. Research methodology: corpora galore

Most treatments of clausal complementation within the ‘functionalist’ tradition in linguistics (some of them reviewed in chapter 1, others in chapter 4) have maintained that different kinds of complement always convey different meanings. These meanings are usually illustrated with a few well-chosen construed and decontextualized sentences, accompanied by a couple of starred sentences, i.e. by claims that the meanings of these complements preclude certain matrix verb-complement combinations. Readers are then expected to match these claims about meanings and predictions about what are and what are not possible sentences against their own intuitions and if there is no ensuing disagreement these claims and predictions are taken to be proven. That is to say, they are taken to be proven without having been checked against any kind of linguistic data (other than a couple of individuals’ intuitions, i.e. the linguist’s, and perhaps those of a few of her/his family and friends, and those of the readers referred to). Such studies typically do not include reports of any kind of systematic evidence gathering, either in the form of extensive and carefully organized informant testing, or in the form of thorough investigations of attested language use. Probably no other scientific discipline would take the kind of argumentation presented in these studies seriously, for relying on one’s readers’ intuitions for evidence is clearly a case of — to use a courtroom expression — “leading the witness”: you cannot get an unbiased opinion from readers when you have already told them (in print!) what to think. What is more, it is extremely doubtful that introspection is a reliable method to test either claims about meanings or predictions about the (im)possibility of certain sentences. The meanings that are proposed are usually couched in such vague and abstract terms that it is very difficult for the consumer of these linguistic writings to find fault with them. Grammaticality judgements, on the other hand, can be very idiosyncratic and often do not square with the linguistic reality revealed by corpus data.

A not untypical example of such an approach is to be found in Givón (1990, 1993), not reviewed in any of the chapters of this volume because Givón very strangely (conveniently? suspiciously?) keeps mum about believe-type accusative and infinitives in his chapter on “verbal complements”. Givón does not claim that different
types of complement carry different meanings as such, but contends that there exists an “isomorphic relation” between the meaning of a main verb and the syntax of its complement clause, which he calls “one of the best examples of a correlation between form and function in grammar” (Givón 1993: 2). Both a main clause and a complement clause code events, and the stronger the “semantic bond” or “semantic integration” between the two events, “the more extensive will be the syntactic integration of the two propositions into a single clause” (Givón 1993: 2). This correlation between event integration and syntactic integration is illustrated in a table in which a representative sample of what Givón terms manipulative and P-C-U (or perception, cognition, and utterance) verbs are ranked according to their position on both scales, from high integration to low integration. This table (Givón 1993: 6) is reproduced here as (4).

(4)

<table>
<thead>
<tr>
<th>Semantic scale of verbs</th>
<th>syntax of COMP-clause</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. She <strong>let</strong> go of the knife</td>
<td>CO-LEXICALIZED VERB</td>
</tr>
<tr>
<td>b. She <strong>made</strong> him shave</td>
<td>BARE-STEM COMP VERB</td>
</tr>
<tr>
<td>c. She <strong>let</strong> him go home</td>
<td></td>
</tr>
<tr>
<td>d. She <strong>had</strong> him <strong>arrested</strong></td>
<td></td>
</tr>
<tr>
<td>e. She <strong>caused</strong> him to switch jobs</td>
<td></td>
</tr>
<tr>
<td>f. She <strong>told</strong> him to <strong>leave</strong></td>
<td>INFINITIVE COMP VERB</td>
</tr>
<tr>
<td>g. She <strong>asked</strong> him to <strong>leave</strong></td>
<td></td>
</tr>
<tr>
<td>h. She <strong>allowed</strong> him to <strong>leave</strong></td>
<td></td>
</tr>
<tr>
<td>i. She <strong>wanted</strong> him to <strong>leave</strong></td>
<td></td>
</tr>
<tr>
<td>j. She’d like for him to <strong>leave</strong></td>
<td>FOR-TO COMP</td>
</tr>
<tr>
<td>k. She <strong>suggested</strong> that he should <strong>leave</strong></td>
<td>MODAL-SUBJUNCTIVE</td>
</tr>
<tr>
<td>l. She <strong>wished</strong> that he would <strong>leave</strong></td>
<td></td>
</tr>
<tr>
<td>m. She <strong>agreed</strong> that he could <strong>leave</strong></td>
<td></td>
</tr>
<tr>
<td>o. She <strong>knew</strong> that he <strong>left</strong></td>
<td></td>
</tr>
<tr>
<td>p. She <strong>said</strong> that he <strong>might</strong> leave later</td>
<td>INDIRECT QUOTE</td>
</tr>
<tr>
<td>q. She <strong>said</strong>: “he <strong>might</strong> leave later”</td>
<td>DIRECT QUOTE</td>
</tr>
</tbody>
</table>

So the semantic bond between, for instance, the main clause (*telling*) event and the complement clause (*leaving*) event in f. is stronger than, for instance, between the main clause (*saying*) event and the complement clause (*leaving*) event in p., and as a result the former complement (the NP plus *to*-infinitive) is more syntactically integrated in its main clause than the latter (the *that*-clause). A sign of this greater syntactic integration is that the subject of the former complement is marked as a direct object, whereas the latter is marked as a subject. The greater semantic integration is perhaps difficult to conceptualize as such, but Givón specifies a number of less abstract “semantic dimensions” which “underlie” it. One of these is “the degree of control, freedom of choice or independent action ceded to the subject-agent of the complement clause” (Givón 1993: 7), which is greater in p. than it is in f., and hence the events in p. are less integrated.
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One may find this suggestion about a parallelism between the semantics and the syntax of clausal complementation intuitively appealing and/or (or because?) one may be aesthetically pleased by it. Its truth value, however, depends on whether any independent observational correlates can be found for the semantic differences that are suggested to motivate the syntactic differences. I do not here want to evaluate the proposal in its entirety, only to have a brief look at the way Givón argues in favour of these differences, as an illustration of how one typically justifies semantic distinctions. Let’s have a look at the first example Givón elaborates himself, viz. the difference between b. and e. in the table above, or between a. and b. in (5).

(5)  a. John made Mary quit her job  
     b. John caused Mary to quit her job

There is a syntactic difference between a. and b., the complement in a. containing a bare infinitive, the one in b. a to-infinitive, and a. is higher on the syntactic integration scale than b. because a bare infinitive, says Givón (1993: 27), is more nominal — or less finite — than a to-infinitive. For the theory to be right there must now also be a semantic difference, in the sense that there must be more semantic integration between the main clause and complement clause events in a. than in b. The relevant semantic dimension is the one already referred to above, that of “intent, control and agentivity”. According to Givón (1993: 8), make is a verb of “intended manipulation”, while cause is much less so, which is “suggested from” the contrast between (6a,b) and (6c,d).

(6)  a. ?Without intending to, she made him quit his job  
     b. ?Inadvertently, she made him quit his job  
     c. Without intending to, she caused him to quit his job  
     d. Inadvertently, she caused him to quit his job

The more deliberate, controlling, agentive nature of the subject of make, says Givón (1993: 9), “is also evident in the reduced control ceded to the manipulee”, which is proven by the contrast between a. and b. in (7).

(7)  a. *She made him deliberately quit his job and leave  
     b. She caused him to deliberately quit his job and leave

In addition, again according to Givón (1993: 9), the more agentive nature of make is illustrated by the fact that its subject can only be an agent, whereas that of cause can be a “non-agent” or a nominalized clause:

(8)  a. *John’s behavior made Mary quit her job  
     b. *The political situation made Mary quit her job  
     c. John’s behavior caused Mary to quit her job  
     d. The political situation caused Mary to quit her job

And finally, though the manipulee-object of make has less control, it must still retain some agentiveness, which “is evident from the fact that only volitional-control verbs may appear in the complement of make”, whereas cause does not impose such re-
strictions, so that its complements can be either volitional or non-volitional” (Givón 1993: 9):

(9)  

a. Mary made John quit his job  
b. ?Mary made John lose his job  
c. Office politics caused John to quit his job  
d. Office politics caused John to lose his job

Now, my problem with all this is not so much that this last point appears to be in opposition to the one made with the sentences in (7), or that I personally do not share Givón’s intuitions about the sentences he questions or rejects, but rather that I am not at all alone in thinking that *make* is not necessarily agentive, and that one does not have to look hard for corpus examples in which *make* seems to all intents and purposes completely synonymous with *cause*. Evidence that I am not alone in this is that in its entry for *make*, the Collins COBUILD English Dictionary for Advanced Learners (3rd edition), a dictionary based on a large corpus of English texts, not only mentions a non-agentive definition (“If something makes you do something, it causes you to do it.”), but in fact offers it before an agentive one (“If you make someone do something, you force them to do it.”) — and note that the first definition actually makes use of the verb *cause*. A quick look at the British National Corpus confirms that examples of the non-agentive use are not very hard to come by:

(10) One of the going-steady girly types at her school told her boys thought she was cool and superior. This made her cry desperately. (A0L 277)
(11) She handed me a glass of cider, others accepted a small glass of a clear liquid that made them wince as they swallowed it. (A61 1561)

Also, though I did not find examples that would directly invalidate Givón’s judgements about (6a,b) and (7a), i.e. combinations of *make* and *without intending to*, *inadvertently* and *deliberately* — but then neither did I find such combinations with *cause*; that is, however big the corpus, the absence from it of very specific word combinations does not rule out their possible occurrence — examples such as (12) and (13) seem to bear out that, even with a human subject, *make* does not presuppose an intention to manipulate.

(12) John Delaney's face came into the dream. His interest in her had been obvious, and because of that she had discouraged it. Somehow he made her feel uneasy. There was something about Delaney, something indefinable, that worried her. (BPA 428)
(13) The kitchen was to the left of the hall; Robyn could hear the bang of a cupboard door, smell the distinctive aroma of fresh coffee. She hesitated, pausing uncertainly outside the doorway, clasping her arms around her body, clutching the robe tightly at her neck in an effort to feel less vulnerable. “Well, are you going to stand there all night?” He made her jump. She stared into the angular face and wondered if that had been his intention. (HGT 299)

Corpus examples (14) and (15) appear to contradict (9b).
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(14) The pain had made her lose her breath for a few seconds. (CR6 2254)
(15) “You’ve made me lose track of the story, silly, with your endless questions.” (GUX 372)

Givón’s intuitions about a semantic contrast between *make* and *cause*, adduced as evidence for a difference in semantic integration between these events and the events expressed in their complements, therefore appear not to hold water: these verbs can be synonyms. A problem for Givón’s theory then is that, when they are synonymous, the one still takes a bare infinitive and the other a *to*-infinitive. In other words, in spite of the apparent absence of a difference in semantic integration, there still is a difference in syntactic integration.

It also follows from the theory that there is a difference in semantic integration between (1) and (2), though, as said, Givón (1993) does not discuss this contrast in this context. Given the syntactic integration scale in (4), the infinitival complement of (2) is more integrated in its main clause than the finite complement of (1), but how should the stronger semantic integration that goes with it be conceptualized? Which of Givón’s semantic dimensions is at the bottom of it? Could “epistemic certainty/uncertainty” be relevant? Givón (1993: 19) uses this dimension to account for the contrasts between a. and b. in (16), (17) and (18), the “fully finite” complements of the b. sentences being less syntactically integrated in their matrices than the less finite — because of the reduction in tense marking — complements in the a. sentences (cf. Givón 1993: 26-27).

(16) a. She suggested that John may have left right away b. She suggested that John had left earlier
(17) a. She agreed that John may have left right away b. She agreed that John had left earlier
(18) a. He said/thought/knew that she might leave b. He said/thought/knew that she had left

The a. sentences express epistemic uncertainty, the b. sentences epistemic certainty, but how this difference is conceptually linked to a difference in semantic integration remains a mystery. However, others have indeed suggested that such a dimension is also involved in the purported semantic difference between (1) and (2) (e.g. Wierzbicka 1988, Verspoor 1990), but they make this case employing the same kind of “evidence” as Givón (1993), i.e. invented and — in the absence of any reports of systematic informant testing — probably untested starred and unstarred decontextualized sentences for which, as I argue in chapter 4, no empirical justification is to be found in corpora.

The main point I want to make here, therefore, is that introspection is a very unreliable source of evidence in the area of clausal complementation: it is so easy to let one’s theory blind one for certain facts, or — if that is too cynical a judgement of what is going on here — one can simply be very easily misguided about what the facts are. Corpus research is therefore an indispensable part of any research making claims about distributional differences between verbs and their complements. In fact,
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Givón (1993: 43) himself almost recognizes this in so many words, for in a footnote to the examples I have reproduced as (6) he writes:

Contrasts such as those between [(6a,b)] and [(6c,d)] are not universally applicable, since they depend heavily on the type of verb in the complement clause. A much better test would be a detailed quantified study of the use of ‘cause’ and ‘make’ in natural text.

A second illustration of a semantic claim about complementation for which distributional evidence is adduced which is not checked against the proper kind of data is one that was originally suggested by Bolinger (1967/1977) and later taken up by Rohdenburg (1993). This claim specifically addresses accusative and infinitives and runs to the effect that the acceptability of such clauses is increased if they can be reduced to common verb plus NP collocations, which Bolinger terms “apparent constituents”. The nearest Bolinger himself gets to a formulation of the principle involved is the following:

[I]f the string believe + NP when taken as a constituent in its own right has a meaning compatible with that of the sentence as a whole and more or less suggesting it, this becomes a factor in improving the degree of acceptability [of the infinitival complement] (Bolinger 1977: 126)

Rohdenburg (1993: 250) formulates it like this:


This makes I believe the report to be true, I believe the man to be honest and I believe their intentions to be honorable (Bolinger’s examples (12), (13) and (14)) perfectly acceptable because they can be reduced to I believe the report, I believe the man and I believe their intentions, respectively. I believe the lights to be on and I believe George to be ready (Bolinger’s examples (15) and (16)) are less acceptable, says Bolinger (1977: 126), because they cannot be reduced to I believe the lights and I believe George, respectively. Bolinger makes no mention of any kind of informant testing or corpus research, however, so that one must assume his approach to be a purely intuitional one. My own intuitions — which are informed by having looked at a great many corpus examples of the construction — tell me there is little wrong with the sentences Bolinger finds less acceptable, and it is not very difficult to find corpus examples like the following that do not answer to Bolinger’s principle.

(19) What should a hotel receptionist do if he or she believes a guest to be dishonest? (EA9 3164)

(20) Rechem also agreed to drop its request for a judicial review into Torfaen’s monitoring of contamination supposedly caused by the firm, and of its publication of the results. […] Rechem believes the results to be unscientific, and
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under the new agreement will be able to append its own commentary to the council’s existing document, especially if it is to form part of a submission to the European Commission. (A2A 555)

(21) Another sharp prod came from the Bishop of Durham, Dr David Jenkins, who said women should not be the victims of “political voting” by members who cared more about church divisions than justice for women. He said such voting “makes women bear the burden of a political judgment. I believe this to be indecent and to add to the already indecent burden women are having to bear.” (A7W 645)

When you believe a guest to be dishonest, test results to be unscientific, or a political act to be indecent, you do not believe the guest, the results, or the act. Whether or not instances that do answer to Bolinger’s rule are more typical than those that do not, only a detailed investigation of a representative sample of real occurrences can reveal. This Bolinger did not do. I myself have so far refrained from doing so as well, for the simple reason that there is no objective measure to separate those that do from those that do not. All I can say is that, having looked at quite a few examples, it is not a hypothesis that would naturally spring to mind.

Rohdenburg (1993), who further elaborates Bolinger’s principle, illustrating it with examples containing less frequent believe-type verbs and applying the principle to a few other constructions, does not report on any systematic informant testing or corpus research either, though his paper contains a host of contrasts like those in (22), (23) and (24) — Rohdenburg’s (1993: 252) examples (4), (10) and (11), respectively.

(22) a. While conceding this point to be well argued, he still maintains that…
   b. * While conceding this point to be misguided, …
   c. * While conceding this article to be well written, …

(23) a. They claimed the money to be theirs.
   b. * They claimed the money to be Peter’s / to be stolen.

(24) a. While asserting his rights to be inviolable, he still conceded that…
   b. * While asserting his rights to be disputed, …
   c. * While asserting this book to be important, …

In fact, Rohdenburg (1993: 252-253) explicitly tells us these are not observational data:

Das Rezept zur Entdeckung zulässiger Acl-Konstruktionen läßt sich demnach wie folgt beschreiben: Man nehme eine möglichst geläufige S-V-O-Kollokation (wie z. B. concede this point in [22a]) und suche zu dem Objekt eine (prädikative) Struktur, die als naheliegende Interpretation des ersten Teilsatzes gelten kann. Dabei ist es von Vorteil, wenn die mit dem Objektausdruck verknüpfte prädikative Struktur ebenfalls eine geläufige Wendung (wie his rights are inviolable in [24a]) darstellt.

In other words, these data are constructed following the principle they are supposed to be evidence of. Rohdenburg’s point of departure is not a set of observations, but a hunch of Bolinger’s which he finds intuitively appealing. Instead of checking
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whether these intuitions are to be trusted by looking for evidence for them, either in actual language use or through informant testing under strictly controlled laboratory conditions, the intuitions themselves are then treated as facts that need to be accounted for. This, of course, is an approach that was current practice for quite a long time in the mainstream of modern linguistics, but it is a highly problematical one because, as I have already indicated in this introduction and will argue more extensively in chapter 4, there is often an enormous mismatch between what people (linguists) think to be the facts of English clausal complementation and what corpora reveal to be the facts.

Since Rohdenburg’s examples contain verbs which are not very frequently complemented by accusative and infinitives — “Ausgesucht wurden solche Verben, die in der Sekundärliteratur selten oder gar nicht als AcI-fähig eingestuft werden. (Rohdenburg 1993: 252) — it is less easy to confront them with corpus examples. In fact, I did not find any instances in the BNC of an active form of concede plus an infinitival complement. The corpus examples in (25) and (26) can, however, be compared with (23) and (24) respectively.

(25) a. The attitude of many older musicians and critics to science and technology is nothing more, of course, than the stale residue of the romantic, fin de siècle aesthetic that, in the phrase of Villiers de L’Isle-Adam, claims science to be “the religion of the suburbs”. (ADP 318)

b. Stendhal, on his return to his adopted city after an absence of two years, claimed La Scala to be the most important opera in the world, since which time no one has felt the need, or had the temerity, to fault his judgement. (ANB 646)

c. We cannot claim these life stories to be “representative” in the strict social scientific sense, but we do believe them to be “valid”. (AP7 284)

(26) a. Readers will find a central concern about the factors that influence social welfare a characteristic of many writings on social policy. Indeed, some of the British contributions to the study of this topic assert theirs to be a distinctive academic subject, “social administration”, which has this concern as its hallmark. (FS7 35)

b. Indicia are signs which create a certain presumption (proof). Menghi, however, asserts such presumption to be semiplina rather than plena (sufficient). (G02 364)

c. Over fifty years ago Dorothy George contested the views of writers like the Webbs and the Hammonds that [the Combination Acts of] 1799 and 1800 amounted to “the most unqualified surrender of the State to the discretion of a class in the History of England”. She denied they were in any sense a new departure and asserted them to be “a very negligible instrument of oppression”. (HXC 1442)

For Rohdenburg, to claim money to be yours (23a) is grammatical because it has the same meaning as the collocation to claim money, and to claim money to be stolen (23b) is ungrammatical (not just less acceptable) because it cannot be reduced to this collocation. But there are no collocations the attested sentences in (25) can be re-
duced to, and though the collocation *to claim money* is well-represented in the BNC, there are no instances similar to *to claim money to be yours*. So combinations of *claim* with an accusative and infinitive that can be reduced to this collocation can hardly be said to be more typical than those that cannot. It is equally hard to see which collocations the matrices and complements in (26) should be reduced to to account for their acceptability. So what reality is Rohdenburg (or Bolinger for that matter) describing?

In an area like that of clausal complementation, and unless one is content with describing one’s own idiosyncratic grammar, it is therefore best to first ascertain what the facts are that need to be described and explained by looking for and collecting a great many attested examples and their contexts. Short, made-up, decontextualized sentences like those in (1) and (2) have a certain indexical value — they are a useful and economical means for linguists to make clear what they are talking about — but that is also where their usefulness ends. They are not necessarily the most typical examples of the constructions they are meant to illustrate, and possibly do not even have any “real world” correlates, which can only result in flawed or pointless descriptions. In addition, their lack of context is likely to preclude a sound description and explanation of their functions and makes it impossible to offer a verifiable observational basis for the proposed descriptions and explanations.

The research reported on in the next chapters is therefore thoroughly corpus-based. Three types of corpora are used. A large monolingual corpus of present-day English, the British National Corpus, is used to make well-founded distributional statements (especially to reject other people’s claims that certain verb-complement combinations are impossible) and to find corroborative or disconfirming evidence for claims about the different meanings or functions of different verb-complement combinations. Every attempt is made to translate semantic or pragmatic claims in observational terms. A monolingual corpus, however, does not always supply sufficient distributional evidence for hypothesized meanings. Which is when a second type of corpus comes in handy, the bilingual corpus. Since translators’ choices can be treated as informants’ judgements, collections of source texts and their translations are a potential font of evidence for semantics that has so far remained virtually untapped in modern linguistics. The bilingual corpus that will be used (in chapter 7) is the online parallel English-(Canadian) French Canadian Hansard corpus. A third kind of corpus, finally, consisting of sets of texts of different types produced in consecutive time periods, will allow us to provide evidence of the spread of certain verb-complement combinations through time and across genres, which may support claims about a change in meaning of these combinations. The only corpus existing to date which makes this possible for the period leading up to today is the ARCHER corpus.

In other words, since it is so easy to be deceived (by oneself and others) both about the (im)possibility of certain verb-complement combinations and about the functions of different kinds of complement, in the studies reported on in the following chapters as little as possible will be left to intuition alone, and every effort will be made to substantiate claims with the solid empirical evidence provided by attested language use.
4. Descriptive and explanatory frameworks: discourse pragmatics and grammaticalization

The main problem with semantic explications of the difference between (1) and (2) is either that they are often so vague that it is difficult to translate them in observational terms, i.e. to construct formal correlates for them which can then be systematically searched for in corpora, or that in cases when distributional correlates are suggested, such suggestions simply do not stand the test of corpora. Proposals about a different semantics must therefore be mistrusted for lack of evidence. There is a second strand of research, however, which does not situate the difference between (1) and (2) in the semantic sphere, but in a discourse analytical pragmatic one. This is also the approach I am taking. Oddly enough, we can again refer to Givón (1990, 1993) by way of illustration, though the tradition does not start with him — others belonging to it are Bolinger (1974), Borkin (1974, 1984), Davison (1984), Mair (1990) and Langacker (1995), though “tradition” is perhaps not the best word because its members — myself included — do not always build on each other’s work.3 4 Again for reasons of complementarity, I will here restrict myself to a summary of Givón’s suggestions to characterize the discourse-pragmatic approach — they are not discussed in any of the following chapters simply because their author was unaware of them when they were written.

3 Langacker (1995), moreover, would not agree that his suggestions are pragmatic rather than semantic in nature (see chapter 4).
4 To the extent that they also invoke an information packaging notion in their treatment of believe-type verbs, generativists like Postal (1974) and Rooryck (1997) could also be added to this list. They hold ‘Focus’ to be a relevant concept (Postal 1974 only implicitly, though), but note that this discourse-pragmatic notion differs from the one or ones the people listed above and myself appeal to since it involves new and/or contrasted rather than given and/or thematic information. Postal (1974: 298) claims that left dislocation, heavy NP shift to the right and Wh-movement make the accusative and infinitive acceptable after a subset of believe-type verbs which are claimed not to allow the construction if the subject of the infinitive remains in its canonical subject position:

(i) Bill’s dinosaur, I estimate to be 175 feet long
(ii) I estimated to be over 175 feet long all the dinosaurs which we caught yesterday in Central Park
(iii) Which dinosaur did you estimate to be 175 feet long?
(iv) *They estimated Bill’s dinosaur to be 175 feet long

Corpus data reveal, however, that there is nothing wrong with the pattern in (iv) (see Table 1 in chapter 5), and one could question the naturalness, and therefore the relevance, of the other sentences. Rooryck (1997), on the other hand, does not seem to bring up Focus to account for a perceived difference in meaning or use between finite and infinitival complements (“It is not immediately clear what the semantic difference is in terms of Focus between the tensed ‘unfocused’ sentential complement […] and the ‘focused’ ECM sentential complement […]” (Rooryck 1997: 15-16)), but presents the mind-boggling argument that the inclusion of +/- Focus in their descriptions explains differences in Neg-raising.
As said in the previous section, Givón (1990, 1993) leaves accusatives and infinitives of the type illustrated in (2) completely unmentioned in his chapters on “verbal complements”. Nor does he mention there that he does treat them in a later chapter — the chapter entitled “Marked-topic constructions” in Givón (1990), and the one entitled “Topicalizing constructions” in Givón (1993). There he talks about the difference between (1) and (2) using the terminology of the generative tradition, i.e. in terms of “raising” — “raising to object” in the case of (2a) and “raising to subject” in (2b). However, he rejects the (early) assumption of this tradition that raised and un-raised structures are merely stylistic variants of each other (because transformations could not involve a change in meaning), but suggests instead that

(a) The raised or “promoted” referents are more topical than their un-raised or “unpromoted” counterparts. And
(b) Referents raised or “promoted” to subject are more topical than those raised or “promoted” only to object. (Givón 1993: 229)

Referents are topical if the information presented in a sentence is “about them” (Givón 1993: 201). So sentence (2a) is more “about” John than (1), and (2b) even more so.

There are two sides to this “aboutness”:

[T]he topicality of clausal arguments in connected discourse involves two distinct aspects of referential coherence, one anaphoric, the other cataphoric:
(a) Anaphoric: The referent’s accessibility
(b) Cataphoric: The referent’s thematic importance

By ‘anaphoric’ we mean accessibility or identifiability of the referent somewhere in the hearer’s previously stored knowledge. By ‘cataphoric’ we mean the assignment of the referent’s importance in the (yet-to-be-produced) subsequent discourse. (Givón 1993: 202)

In other words, Givón’s topicality is more or less a combination of what is kept apart in the systemic-functional tradition: information structure (the distinction between ‘given’ and ‘new’ information) and thematic structure (the distinction between the ‘theme’ and the ‘rheme’ of a sentence) — see, for instance, Halliday (1970). The difference in “aboutness” between (1) and (2) could therefore be paraphrased like this: John in (2) is both more “given” and more thematic than John in (1), and more so in (2b) than in (2a). I myself have independently suggested that both dimensions are indeed very relevant (see especially chapters 1 and 5) to the discussion of the functional difference between (1) and (2), but my own suggestions are slightly more subtle than Givón’s in two ways. First, they specify how “more topical” in the last quote but one had best be interpreted, at least as far as anaphoric topicality is concerned, i.e. in terms of a certain probability rather than in terms of degree: the subject of an infinitive is not necessarily more ‘given’ than the subject of a finite complement, but infinitival complements are much more likely to have ‘given’ subjects than their finite counterparts. Second, my own research would suggest that since the subjects of infinitives preceded by active matrices are almost always ‘given’, there is
unlikely to be much difference in anaphoric topicality between the subjects of infinitives preceded by active matrices and those preceded by passive matrices. Cataphoric topicality or ‘theme’, on the other hand, does seem to be an important parameter in the choice between these two patterns (see especially chapter 5).

Givón (1993) does not support his claim about raised referents with the kind of detailed quantitative analysis he presented in Givón (1983), but restricts himself to three arguments. First of all, raising seems to select definite or generic referents, and to reject referring indefinites (Givón 1993: 229). This is not something I feel in need of questioning, but sadly it is only claimed, and illustrated with a few starred and unstarred sentences (none of them of the type we are dealing with here, however, so I will not repeat them), rather than supported by real data. Second, it is normally only possible to raise an NP if it is the subject of the complement clause. This is illustrated in (27) and (28) (Givón’s (1993: 230) examples (65) and (66)):

(27) a. They report that John rejected Mary
b. They report John to have rejected Mary
c. John is reported to have rejected Mary
d. *They reported Mary John to have rejected (her)
e. *Mary is reported John to have rejected (her)
(28) a. They report that Mary was rejected by John
b. They report Mary to have been rejected by John
c. Mary is reported to have been rejected by John

In (27), where Mary is object in the complement clause, it cannot be raised to the matrix. In (28), it is subject, and consequently raising is possible. Givón (1993: 231) offers the following explanation:

The subject-only restriction on raising is commonly interpreted as a purely syntactic restriction. While this interpretation describes the facts, it does not go far in explaining them. A likely explanation of these syntactic facts is this: If raising is indeed a pragmatic operation that applies to highly topical NPs, then the restriction simply re-iterates the fact that the subject is the most topical grammatical role in the clause, and that it competes successfully with the less-topical direct object for further topicalization.

So this second argument can be constructed as follows: subjects of infinitives are more topical than subjects of finite complements because the former can be traced back to subjects of finite complements but not to objects and subjects are more topical than objects. It does not follow at all from the explanans, however, that there is a difference in topicality between the subjects of the two structures. If anything, it would explain identical topicality.

Givón’s (1993: 231) third argument pertains to ‘the use of raising in text’:

Not surprising, the best support for the idea that raising is a topicalizing device comes from observing the distribution of raising constructions in
text. Raising constructions are not common in spoken English, nor are they that frequent in fiction. Where one finds them in relative abundance is in the news section of newspapers. Raising to subject appears to be the predominant type found. Typically, a raised NP is either:

(a) Globally topical: It is mentioned in the headline as the main topic of the report; or
(b) Locally topical: It is mentioned as an important topic in the clauses preceding the raised construction; or both.

This he illustrates with a few examples selected from the 28 instances he found in two issues of a local paper and one issue of a national newspaper, 26 of them involving raising to object, only two of them involving raising to subject. These are not compared with examples of unraised constructions. Nor are the claims about distribution over different text types substantiated in any way. In other words, Givón (1993) is a bit short on evidence. In addition to slightly refining earlier suggestions about the discourse-pragmatic nature of the difference between (1) and (2), the main contribution of the studies in this volume is that they supply these suggestions with a sounder empirical basis.

A not unimportant refinement I have added is my claim that the typical information structure of infinitival complements with active matrices helps to explain their relative infrequency as compared to infinitival complements with passive matrices (see chapter 5). Not only does the givenness of both the subject of the active matrix and the subject of the infinitive result in more referential coherence than is strictly necessary, making the pattern with the active matrix a dispreferred one, but the givenness of the subject of the infinitive also allows it to compete successfully with the subject of the matrix for ‘theme’ status, and therefore for sentence-initial position. More often than not, however, there is no real competition between an active and a passive matrix, for when a passive is used it is usually impossible to find a referent in the text that could fill the subject of the active equivalent. The participant that is left unexpressed in the passive is not usually one that has been explicitly introduced in the text, its only reconstructible referent being something like ‘people in general’ or ‘people who should know’ (insiders, experts). In other words, very often instances of the type of (2b) are perhaps best not conceived as passive versions of sentences of the type of (2a) to start with, and perhaps these passive matrices have developed a special use of their own. They might even have stopped being matrices.

A first suggestion to this effect was made by Bolinger (1974: 82), who called them “one of many kinds of subordinating adverbializations, tending in the direction of auxiliary status”, which was later reiterated by Mair (1990: 115), who said they “outwardly resemble[s] the semi-auxiliary or catenative component within a complex verb phrase (cf., e.g., ‘She is bound to arrive’)” — see also Meyer (1997: 156-157) for a similar characterization. Of these three linguists, only Bolinger (1974: 81) provides some kind of evidence that we are indeed faced here with a “demotion of main verbs to the status of modifiers”. The test he proposes is that the complement rather than the matrix should serve as the answer to the question What happened next?, which seems to work alright for cases like Bolinger’s (1974: 83) own (context-less) example John is believed (supposed, said, known, alleged, reputed, thought) to have
blown the whistle on his cronies — the answer being John blew the whistle on his cronies rather than Someone believed something — but not for cases like (2b) in which nothing “happens” as such. In chapter 6 I will argue on the basis of statistical data that (at least some of) these matrices are grammaticalizing into auxiliary-like elements using criteria from grammaticalization theory. That is to say, I will make reference to the set of claims about grammaticalization phenomena (i.e. linguistic changes involving a decrease in lexical status and/or an increase in grammatical status) that has fairly recently come to be known as “grammaticalization theory”, and which could be said to have entered the linguistic canon in 1993 with the publication of an introduction to it in the Cambridge Textbooks in Linguistics series (Hopper and Traugott 1993). As a theory (but not as a kind of linguistic change), grammaticalization has even more recently come under serious attack (see Campbell 2001a), the tenor of the criticism being that grammaticalization can be reduced to mechanisms of linguistic change like reanalysis and extension which have long been recognized in historical linguistics (Campbell 2001b). Be that as it may. My own concerns are descriptive rather than theoretical, and even the detractors of grammaticalization as a scientific paradigm agree that from a descriptive point of view it has certainly proved its usefulness. In the words of Campbell (2001b: 158):

While grammaticalization does not have the theoretical value that some have attributed to it, and while it lacks any status of its own independent of other kinds of linguistic changes and mechanisms of change, it does have heuristic value. The enthusiasm for grammaticalization has brought forth a range of examples (especially the lexical > grammatical, less grammatical > more grammatical sort) which is important for providing a broad and useful database and for focussing attention on a particular set of changes within the broader picture of linguistic change.

My very modest ambition is merely to argue that the current behaviour of a certain verb pattern can be described as the result of — or a stage in — a change that is part of this set.

5. A survey of the chapters

The different chapters of this collection therefore fall into two groups. The articles grouped in Part I all deal with the discourse pragmatics or information packaging side of the difference between (1) and (2a), on the one hand, and between (2a) and (2b), on the other. Those arranged in Part II are concerned with the hypothesized grammaticalization into auxiliary-like evidentials of passive matrices like the one in (2b). A recurring theme in every chapter, however, is a preoccupation with evidence: great effort is made to substantiate claims with observational data.

As a result of their thematic arrangement, not all articles are presented in the order in which they were written, and earlier chapters sometimes refer “back” to subsequent ones. This should not pose a problem, though, since they were all conceived as stand-alone texts. The following paragraphs are a sketch of their history and specify the contribution made by each of them.

21
Chapter 1. The choice between infinitives and *that*-clauses after *believe*

As so much in life, the choice of the particular problems particular researchers get their teeth into is often decided by accident more than anything else. The present researcher’s interest in *believe*-type verbs was occasioned by his decision in the summer of 1996 to stand in for a colleague who had submitted an abstract for the Sixth International Valency Seminar organized in Odense, Denmark, in November 1996. The paper for that abstract, which wanted to make a theoretical point about different kinds of contextual influence on valency, never got written, because the data that would justify making the theoretical point had not been collected yet. The abstract, however, did mention infinitives and contained examples like *We know her to be honest* and *Some insects have been found to live for several years without any water*. From there to the alternation exemplified by (1) and (2) is a little step, and the paper that did get written first received the not very elegant title ‘The “meaning” of *believe* *X to be* vs. *believe that X is*’. It was published in 1997 in the first volume of the CUP journal *English Language and Linguistics* under the title ‘The choice between infinitives and *that*-clauses after *believe*’, and is reproduced here as chapter 1. The inverted commas in the original title were meant to challenge suggestions that the choice between a finite and an accusative and infinitive complement had anything to do with semantics. Concentrating on the verb *believe* itself, as an example of its class, the paper provides a first set of empirical data in support of intuitions formulated in the literature that this choice is discourse pragmatic in nature. In relation to subsequent chapters, this first one can be seen as a pilot study.

Chapter 2. The proof of the pudding: is *prove to be/that* like *believe to be/that*?

The second chapter was written in 1997 to honour Louis Goossens on the occasion of his early retirement in 1998. It explores whether what was found to be the case for *believe* also holds true for *prove*, and is therefore a first attempt to establish whether the conclusions of chapter 1 have any validity beyond the lexical item *believe* and pertain to an entire class of verbs. This turned out to be only partially the case. I suggested at the time that a lexical factor, i.e. a factor specific to *prove*, could be responsible. Two meanings can be distinguished for *prove*, and it was found that one meaning shows a preference for the infinitival complement and the other a slight preference for the *that*-clause. Proponents of the view that different complements carry different meanings might well feel vindicated by this, for what could account for this preference if not the meaning of the complement? But that would be jumping to conclusions. First of all, what we certainly do not have here is that each kind of complement is reserved for one of the meanings of *prove*; there is only a certain preference. And second, it is difficult to see how any of the suggestions about different meanings for different complements (see especially chapter 4) could be related to...

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5 The abstract was printed in the sixth issue of *Contragram: Quarterly Newsletter of the Contrastive Grammar Research Group of the University of Gent.*
these two meanings. Wierzbicka (1988), for instance, connects the infinitival complement with “subjectivity”, “private knowledge”, and “epistemological opinion”, which notions seem incompatible with any meaning of prove. Verspoor’s (1990) suggestions, on the other hand, would entail that a speaker using an infinitive after prove has more evidence than when s/he would use a finite complement, but if strength of evidence can be related to the two meanings of prove mentioned in chapter 2, then surely one would expect the preference of these meanings for one of the complements to be the other way round, for the meaning most connected with hard scientific evidence shows a slight preference for the that-clause.

What other reason could there be for this preference? The two meanings of prove whereof mention are illustrated in (29) to (32) with sentences that have non-human subjects (the possibility of which makes prove an untypical believe-type verb).6

(29) With mono recordings, many experiments over the decades have attempted to prove that it is impossible to tell the difference between the original and a recording. (B2Y 884)

(30) Patinated metalwork is not just confined to Japan. Pliny describes a much sought-after metal called Corinthian bronze, an alloy of copper with gold and silver, which took on a purplish hue. It has been argued that this is a description of a patinated alloy. Analysis of a small Roman plaque with a black patina and gold inlays proved it to be largely copper with traces of silver, gold and arsenic, adding weight to the view that this patination technique was practised in the West as well as the East. (AC9 350)

(31) […] despite the known horrors of this dreadful war the British people have seemed oddly aloof to the suffering of the Bosnians. But this week’s news that the Government has agreed to offer sanctuary to 4,000 victims proves that public opinion is turning. (CBC 735)

(32) Appended to the article was a proposed constitution. It is noteworthy that neither the article nor the constitution uses the expression ‘deaf and dumb’. […] Another feature of interest is that Maginn’s draft constitution provides that only deaf people were eligible for membership of the proposed Association. Eventually neither proposal found favour, but they prove Francis Maginn to have been a man of vision and ahead of his times in his thinking. (FTX 192)

(29) and (30) are examples of what is called the ‘true’ meaning in chapter 2, which can be paraphrased as “to argue or present evidence that something is definitely true” — the nouns experiments and analysis imply the collection of evidence. (31) and (32) exemplify the ‘show’ meaning: “to be evidence that” — the nouns news and

6 This potential of prove for non-human subjects might help to explain the fact that with prove the infinitival complement is more often preceded by an active matrix than by a passive one, which also makes it untypical (see chapter 5).

7 This is not how this second meaning is glossed in chapter 2. The definition provided there is in fact more appropriate of the third meaning of prove distinguished below.
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proposal do not imply any evidence gathering. Note that the latter meaning is perhaps closer to a third meaning of prove, illustrated in (33) to (37), than the former.

(33) Winston Churchill, relieved of his responsibilities, travelled to the United States of America, in March 1945, where he made a speech in which he made a statement that was to prove profoundly true. (ALY 979)

(34) What follows is offered as a tentative approach, but one that has already proved useful to teachers. (EV4 897)

(35) Geochemical soil traverses and deep overburden drilling have proved useful exploration techniques. (E9X 350)

(36) These relatively complex experimental designs are certainly open to more than one interpretation. Unfortunately, the same has proved to be true of experiments using Lawrence's original design. (APH 1211)

(37) As I mentioned in the chapter describing the actual techniques of pressing (see pp. 36-45), it is essential to dismantle red roses, or any roses of the hybrid tea or floribunda varieties, and to press them as individual petals. You must also remember to press some of the other parts of the roses, such as the sepals and perhaps even the centres, as these will prove to be useful later on when you come to reassemble them into a design. (CE4 938)

In these sentences prove functions as a copula, meaning something like “to become clear after a time that something is true or has a particular quality”, or “there is evidence that something is the case”, i.e. here as well there is no implication of evidence gathering. Could this third use of prove help to account for the preference of accusative and infinitives for what is termed the ‘show’ meaning in chapter 2, i.e. could proximity in meaning bring about similarity in patterning? This third meaning is indeed not only compatible with an infinitive and incompatible with a that-clause, but it is also compatible with an accusative and infinitive, though only a special kind, viz. the kind in which the “accusative” is a reflexive pronoun. Examples are:

(38) Archbishop Romero, although thought to be a moderate when he took up the Archbishopric, proved himself to be a zealous proponent of Liberation Theology, broadcasting his masses, which included political messages, to the people throughout the country, by radio. (AN3 63)

(39) With this second novel, Amy Tan has again proved herself to be a first class writer, one who can write books which not only have enormous popular ap-

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8 Cf. Collins COBUILD English Dictionary for Advanced Learners s.v. prove, sense 1.
9 There is of course ample evidence for an associative link between syntactic patterning and meaning. The research of the Birmingham Corpus Linguistics Group, for instance, has revealed that this link reveals itself in two ways: a) different senses of words tend to be distinguished by different patterns, and b) particular patterns tend to be associated with lexical items that have particular meanings, though it is not the case that a single pattern occurs with words of a single meaning, and not all words sharing a meaning necessarily also share a pattern (see Hunston and Francis 2000: chapter 4).
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peal, but also teach us something new about the human condition. (G2V 1389)

It is possible, therefore, to find an explanation for why prove does not fully comply
with the discourse pragmatics of the choice between accusative and infinitives established for believe in the first chapter and for additional believe-type verbs in the next chapter without hypothesizing different inherent meanings for different kinds of
complement. A particular meaning of the verb may be preferentially expressed by a
certain pattern as a result of analogy with a similar meaning which cannot be ex-
pressed by the alternative pattern.10

Chapter 3. Is claim a believe-type verb? Further proof of the pudding.

The third chapter, which started life as a guest lecture delivered in the spring of 1999
at the University of Antwerp, was written when my database of paragraph-length
extracts from the BNC with either an accusative and infinitive or a finite complement
included not just occurrences with believe and prove, but also with judge, show, think
and claim. Over a thousand extracts in all. The import of the chapter goes beyond the
modest focus suggested by its title, since it reports that what was proposed in chapter
1 on the basis of data with believe is confirmed by the data in the larger collection.
The chapter puts the spotlight on claim, however, to make the extra descriptive point
that this verb is a fully-fledged believe-type verb, though this is not always recog-
nized, and sometimes even denied. Rohdenburg (1993: 252), for instance, as men-
tioned above in section 3, avers that it only allows the infinitival complement in
sentences containing apparent constituents. The data presented in chapter 3 refute
this.

Chapter 4. Is there semantics in all syntax? The case of accusative and infinitive con-
structions vs. that-clauses

Chapter 4 resulted from an invitation to contribute a paper to a symposium held in
Paderborn in the summer of 2000 on ‘Determinants of grammatical variation in Eng-
lish’, and to subsequently write up the paper for the book bearing the same title, pub-
lished by Mouton de Gruyter. It is the culmination of the chapters in part I of this
collection that address the difference between (1) and (2a). The chapter re-presents
the quantitative data already used in chapter 3, but that is not the say that it offers no
new data. On the contrary, it provides corpus evidence in support of the descriptive
point that the alternation illustrated in (1) and (2a) is part of the valency of a far
greater part of the verbal lexicon than some have assumed. More specifically, evi-
dence is provided in support of the novel claim that when perception verbs enter the
patterns of this alternation, they do not necessarily turn into cognition verbs. This
then helps to cast doubt on the presumption, rife in present-day linguistics, that all

10 For evidence of the role of analogy on patterning, see Hunston and Francis (2000: chapter 4).
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syntax is semantically relevant. The chapter is indeed the most ambitious one so far in that it collides head-on with a few proponents of such a relevance, arguing that the principle that there is semantics in all syntax can only be upheld when only a limited amount of data is taken into consideration (i.e. data generated by the linguist’s intuitions), or when semantics is given a very wide scope. With relation to the first of these conditions I hasten to add, however, that I do not wish to imply that some are consciously selective, i.e. deceiving, in their presentation of data. Instead my point is that the confrontation of intuitions about clausal complementation with attested usage makes it abundantly clear that such intuitions can be very deceptive.

Chapter 5. Infinitival copular complement clauses in English: explaining the predominance of passive matrix verbs

Written in the spring of 1998, the fifth chapter is chronologically positioned in between chapters 2 and 3. I have placed it at the end of part 1 of the collection, however, because whereas the previous chapters concentrated on the difference between finite complements and accusative and infinitives with active matrices (i.e. the difference between (1) and (2a)), this chapter focuses on the distinction between accusatives and infinitives with active matrices and those with passive matrices (i.e. the distinction between (2a) and (2b)). More particularly, it provides a first answer to the question of why such passives should occur much more frequently than the actives, and in that way it connects part 1 of the volume with part 2, which revolves around a second answer. The argument put forward in this final chapter of part 1 is that the relatively low frequency of accusative and infinitives with an active matrix could follow naturally from their typical information structure: discourse-pragmatically, accusative and infinitives with active matrices have nothing (or only very little) going for them.

Chapter 6. The passive matrices of English infinitival complement clauses: Evidentials on the road to auxiliariness?

A first version of chapter 6 was conceived in the autumn of 1998, so that this chapter as well falls chronologically between chapters 2 and 3 (more precisely between chapters 5 and 3). It was written for publication in Studies in Language and for presentation at the ‘New reflections on grammaticalization’ symposium held in Potsdam in June 1999. After a very long wait for reviewers’ comments on the first version, and another even longer wait for comments on the revision, it finally joined the queue for publication in SiL halfway 2000 and was eventually published in the spring of 2001.

The chapter addresses a second reason for why accusative and infinitives more often have passive than active matrices: many of these passives are no longer passive pendants of actives, but have turned into something entirely different. Whereas (2a) is a bi-clausal sentence, (2b) is mono-clausal. The passive is no longer a main clause, but an auxiliary-like element carrying an evidential function. All believe-type verbs entering pattern (2b) can express an evidential meaning, but some are so much more
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frequent than others and some enter the passive pattern so much more frequently than the active pattern, that surely some instances of the passive pattern must have developed a special use of their own. What is more, frequently used representatives of the passive pattern easily combine with all sorts of verbs, whereas active matrices do so less easily. There is reason enough to assume, therefore, that the choice of a particular “matrix” verb in sentences like (2b) is often quite a different kind of selection than the choice of a particular matrix verb in sentences like (2a). The latter is a lexical choice, the former often a grammatical one, and grammatical selections have a higher frequency than lexical ones (put differently: function words are more frequent than content words).

Chapter 7. Translations as evidence for semantics: an illustration

The rudiments of chapter 7 were thought up in the winter of 1998-1999 and were first presented under the title ‘English passive matrix clauses as evidentials: empirical contrastive support’ at the symposium ‘Contrastive Linguistics and Translation Studies: Empirical Approaches’, held in Louvain-la-Neuve in February 1999. Its first version therefore falls chronologically between chapters 6 and 3. A much matured and somewhat expanded version entitled ‘The translator as linguistic informant: an illustration’ was eventually sent to Linguistics for consideration in January 2002, after the editors, and/or their reviewers, of two other journals had chosen to sit on the versions they had received (one of these journals is now three years behind schedule and its editors have recently been replaced). The title eventually given to the chapter was suggested by the editor(s) of Linguistics because their two reviewers agreed that ‘The translator as linguistic informant’ could mislead the reader into thinking that the article was about translators acting as subjects in linguistic informant testing.

This indeed is not what the chapter is about. Quite the reverse, it suggests that translation corpora could provide a useful alternative to informant testing as a way of empirically justifying one’s assertions about meanings. Continuing the quest for evidence that the passive “matrices” of accusative and infinitives can be auxiliary-like evidentials, the chapter elaborates a suggestion put forward in chapter 6 to the effect that the linguistic choices translators make in their translations can provide substantiation for such a claim. In particular, I argue that matrices that are either unmatched in a translation corpus or which are matched in a certain non-literal way, either lexically or grammatically, can provide support for the hypothesized grammaticalization.

Chapter 8. The be said to construction in Late Modern English

In the case of chapter 8 there is no discrepancy between its positioning and its chronology: the final chapter is also the one that was written last. It was written for a Festschrift for a former colleague and is not very long as a result (the editors imposed a limit of 3,000 words). This does not, however, make the findings presented in it any less interesting.
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Since grammaticalization is a kind of language change, claims about grammaticalization must be backed up by historical evidence. If it is true that *be said to* and the like are turning into auxiliary-like elements, it must be possible to adduce diachronic evidence which shows that they now have some sort of usefulness which at one time they did not use to have. Proof of a rise in their frequency could be interpreted as such. To paraphrase Bybee and Hopper (2001: 19): grammaticalized items have a certain usefulness in discourse and this is reflected in their frequency. Chapter 8 investigates whether there is any evidence to be found in the recent history of English that our passive matrices have become more frequent. The chapter also probes whether their distribution across different genres can provide additional support for their hypothesized special usefulness.

Though it is the final chapter of this collection, chapter 8 cannot be said to be “conclusive”: it only represents a small first step in the investigation of the historical dimension of the grammaticalization affecting the passive matrices of accusatives and infinitives. What better finish, however, than an open ending that can spark off additional research.

Antwerp, November 2002.

References

Introduction


Part I

The discourse pragmatics of the choice between finite and accusative and infinitive complements
Chapter 1

The choice between infinitives and *that*-clauses after *believe*¹

Intuitive, sentence-based approaches have so far failed to account conclusively for the choice between a *that*-complement and an infinitival complement after *believe*-type verbs, in sentences like *I believe something like this to be very much the case* (EB2 1297) and *I believe that monetary union is political union, and that the creation of a single currency is federalism* (HHW 13012). Syntactically, there is no free variation between the two patterns, since there are a number of formal restrictions on the infinitival complements that do not apply to the *that*-complements. But is there a semantic motivation behind the choice in cases when there are no formal reasons for choosing one or the other? This paper surveys a few earlier suggestions to this effect, but argues that a corpus-based approach unmistakably suggests that factors of a textual nature are at work, rather than purely semantic ones.²

1. Introduction

Variation between *that*-clauses and *to*-infinitival complements of the kind illustrated in (1) and (2) has received a fair amount of attention in descriptive linguistics (see Mair, 1990: 174-200, and the references there; Dixon, 1991: Chapter 7).³

(1) John believes that women of the 90's don't have time to spend hours fussing with their hair. (CDH 700)
(2) The District Attorney (this is an American story) believes the prisoners to be guilty of a serious crime, but has no proof that would stand up in court. (B78 565)

There is agreement that, syntactically, the *that*-complement is the more versatile of the two, allowing the addition of tense markers and modal auxiliaries, and being

¹ The research reported on in this paper was made possible by the Research Fund of the University of Gent (*Bijzonder Universitair Onderzoeksfonds* contract no. 12052095). I am grateful to Bart Defrancq, Filip Devos, and, not least, Katja Pelsmaekers, for encouragement and comments on an earlier version. I should also thank *English Language and Linguistics* editor Bas Aarts and two anonymous referees for very pertinent feedback.

² I am here using the term ‘semantics’ rather loosely in its traditional sense, which is not usually taken to include what Michael Halliday refers to with ‘textual meaning’ (see, e.g., Halliday, 1985). However, what is rightfully called ‘semantic’ is not the issue in this paper.

³ All examples are taken from the *British National Corpus*, unless indicated otherwise. In the source code that follows each example the three positions before the space identify the extract it is part of (which can be looked up in Burnard 1995); the number following the space is the line number of the example within the extract.

(3) (a) Many Christians believe that there will be a time in the future when Jesus, as Son of Man, will return. (CEJ 1329)
   (b) *Many Christians believe there to be a time in the future when Jesus, as Son of Man, will return.

(4) (a) Age Concern believes that convalescent facilities must be available to all elderly patients who require them. (A10 1343)
   (b) ≠ Age Concern believes convalescent facilities to be available to all elderly patients who require them.

(5) (a) Despite these problems, [...], most scientists believed that supergravity was probably the right answer to the problem of the unification of physics. (H78 1604)
   (b) *Most scientists believed supergravity to be probably the right answer.

(6) (a) We firmly believe that unless this is done it is possible that minerals companies could activate these permissions either tomorrow, at any time during the 20 year period, or beyond. (GXG 3137)
   (b) *We firmly believe unless this is done it to be possible that... /?We firmly believe it to be possible, unless this is done, that minerals companies...

Another reported restriction on the infinitival complement is that its verb must be either stative (to be being the dominant verb, cases like (7) in which a stative verb other than be is used being exceptional) or perfective (as in (8)); they are incompatible with non-perfective dynamic verbs (as in (9), but see Mair, 1990: 190 for exceptions to this rule).

(7) There was not a poet’s emotion which we did not heartily believe ourselves to share, evoked by the poem but not imitated from it. (ABL 165)
(8) In 1971, after a bitter civil war, Bangladesh emerged as a separate state and the new government, wrongly believing tribal leaders to have supported Pakistan in the war, stationed a counter-insurgency force in the area. (HH3 4246)
(9) *The new government, wrongly believing tribal leaders to support Pakistan in the war, stationed a counter-insurgency force in the area.

On the other hand, according to Mair (1990: 191 and 1993), the to-infinitive is the syntactically preferred choice in relative clauses with ‘raised subjects’, like (10), because "the serial sequence of two finite verb phrases one of which is syntactically

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4 An anonymous referee has pointed out that perfectives are also stative – they denote the resulting state ensuing upon the realization of the past participle’s event – so that this restriction on the infinitival complement could be reduced to the single category of stativeness.
subordinated to the other [as in (11)] [...] makes such structures difficult to process” (Mair, 1990: 191).

(10) The reason for MI5’s inefficiency is that it wastes far too much time and resources chasing after the wrong sort of people who it believes to be subversive, while real enemies of the state are able to go on spying undetected for decades. (AN0 87)

(11) Her mother is mentally disturbed and her step-father, who she believes is her real father, rapes her. (KAY 1068)

On the semantic considerations that play a part in the choice between the two constructions there is, however, much less agreement, and none of the specific suggestions that have been made so far has made it into the linguistic canon. Section 2 of this paper will briefly review these suggestions. The cause of the problem with them is probably that they are the outcome of reflection on a limited number of invented examples, for once one starts looking at a fairly large collection of occurrences of the two kinds of construction in the co-texts in which they are used, textual motivations for preferring the one over the other do suggest themselves in cases when there is no apparent syntactic motivation. Section 3 will put forward two textual factors that could play a part in the choice between the two patterns and test these against a sample of about 100 contextualized instances of each construction.6

2. Is there a difference in meaning?

A major concern in both theoretical and applied linguistics these days is the question of the relationship between the patterns verbs enter into and the meanings they express, with one strand in present-day research claiming that verb patterns organize the verbal lexicon semantically, the idea being that verbs that share one or more patterns also share some meaning (see, for instance, Levin, 1993, and Francis, Hunston and Manning, 1996), and others going one step further to claim that the patterns

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5 Note that, as Mair (1990: 191) points out, the finite complement cannot be introduced by that in such cases: *...who she believes that is her real father... Variation between that-clauses and that-less finite complement clauses falls outside the scope of this paper, but see note 13.

6 It should perhaps be pointed out that the choice between the two patterns can also be lexically constrained. In the case of believe, for instance, there is variation only when the meaning of the verb can be glossed as “have an opinion: to think that something is true, although you are not completely sure”, not when its meaning is “be sure something is true: to be sure that something is true or that someone is telling the truth” (Longman Dictionary of Contemporary English s.v. believe). In the latter case only the that-clause is possible, as the following examples make clear:

(i) Marie was ready now to believe that Gazzer could have stolen the keys and wrecked the kiosk. (ACB 693)
(ii) I can't believe that Paul was a black magician. (H8B 1789)

(i') Marie was ready now to believe Gazzer to have stolen the keys...
(ii') I can't believe Paul to have been a black magician.
themselves carry meaning (e.g. Dixon, 1991, 1995; Duffley, 1992; Wierzbicka, 1988). Levin (1993: 182), for instance, lists the verb in the title of this article as a ‘Declare verb’, together with adjudge, adjudicate, assume, avow, confess, declare, fancy, find, judge, presume, profess, prove, suppose, think and warrant, which have in common that they can take an ‘infinitival copular clause’, as well as a that-clause, as complement. Levin does not suggest that the choice for either one or the other pattern carries with it a difference in meaning. Francis et al. (1996: 99) classify believe, on the one hand, as a member of the ‘think’ group in their section on the ‘V that’ pattern, together with accept, acknowledge, agree, anticipate, appreciate, assume, ..., which are all “concerned with thinking”; and, on the other hand, as a member of the ‘believe’ group in their section on the ‘V n to-inf’ pattern, together with acknowledge, adjudge, allege, assume, consider, declare, ..., which are all “concerned with thinking, saying, or showing something” (Francis et al. 1996: 295). They do not connect the two groups, however, and do not address the question of a difference in meaning between the two patterns. In their chapter on ‘Combinations of patterns’ they list the verb not only with the members of these ‘think’ and ‘believe’ groups that can take both patterns, but also with verbs like advise, ask, beg, caution, command, direct, instruct, order, ..., without any semantic characterization or differentiation (Francis et al. 1996: 600). In so doing, they are not distinguishing between what Dixon (1991, 1995) has called ‘Modal TO’ and ‘Judgement TO’, which in his opinion have their own meanings, as do that-complements, wh-complements, ing-complements, etc. He describes these meanings as follows:7

THAT complements refer to some assertable activity or state as a single unit, without any reference to its inherent constitution or time duration.  
ING complements refer to some activity or state as extended in time, perhaps noting the way in which it unfolds.  
Modal (FOR) TO complements relate to (the potentiality of) the subject of the complement clause becoming involved in the state or activity referred to by that clause.  
Judgement TO complements refer to a judgement or opinion which the main clause subject makes, through the complement clause, generally relating to a state or property of the subject of that clause. (Dixon, 1991: 237)

One fails to see, however, how such a characterization helps to distinguish between the meanings of believe that X is and believe X to be, since both constructions are

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7 I have added Dixon’s description of the meaning of ing-complements to make clear that the addition of “as a single unit, without reference to its inherent constitution or time duration” in the meaning description of that-complements is there to contrast these with ing-complements, not with infinitival complements (see also Dixon 1995: 185). But that-complements that contain progressive verb phrases do exist, of course:

(i) One friend said: ‘Denise believes that her husband was pushing their daughter too far, too fast, too soon.’ (CBE 2624)
(ii) At the same time the council in England believed that the king’s familiares were exercising undue influence over him: the unity which Edward had been at such pains to build up in 1337 was on the point of fracturing. (E9V 520)
used to express opinions and in both cases the complement can refer to an assertable state.\(^8\) Dixon (1991: 223) states that “[a]ll verbs which take Judgement TO also accept a THAT complement clause, sometimes with a very similar meaning”, but does not discuss potential differences in meaning. Specific suggestions about such differences have on the whole not received a favourable press. Duffley (1992: 3), for instance, who himself is concerned with the semantic contrast between to-infinitives and bare infinitives rather than with that-complements, castigates Riddle’s (1975: 473) suggestion that the difference has to do with “the closeness of the relationship between the subject or speaker and the predication of the complement” and that in infinitival complements “there is a greater participation on the part of the subject or speaker in terms of control, subjective opinion, and attitude, as well as a sense of decreased authority and distance” (ibid.), whereas that-complements “describe situations which are more objectively true and where there is a greater psychological distance between the subject or speaker and the object” (ibid.), saying that such observations “are too general to be of much use and therefore raise the question of what they reveal about the meaning of the forms studied” (Duffley, 1992: 3). He reserves the same judgement for Borkin’s (1973: 44) similar characterization that “[s]yntactic disintegration of an embedded underlying clause [in other words, using a to-infinitive instead of a that-complement] parallels a semantic movement from an empirically oriented or discourse given proposition toward a matter of personal experience, individual perception, or a conventionally determined state of affairs”.\(^9\)

Mair (1993: 7) seems more sympathetic towards Borkin and also makes mention (1990: 197) of claims by Ureland (1973: 288-9) that the infinitival construction serves to place added emphasis on the subject of the infinitive, and by Maxwell (1984: 370) that the true paraphrase of *I believe X to be...* is not “I believe that X is...”, but “I believe about X that X is...”. Mair (1990: 198) also draws attention to Steever’s (1977) attempt to account for the alleged difference in meaning between the two constructions in terms of Grice’s (1975) Cooperative Principle (CP). Steever (1977: 596) argues that since that-complements allow a wider range of tense, aspect and number distinctions than infinitival complements, the former require more effort to produce and therefore violate the CP. The addressee reasons that such a violation is purposeful, that s/he should therefore put more effort in the interpretation of the sentence, and concludes that the content of the complement clause is controversial. Conversely,

When Raising applies [i.e. when an infinitive is used], it is more difficult to highlight or challenge the content of the complement clause. On the assumption that the speaker is following the CP, the addressee concludes that the content of the complement clause is non-controversial, otherwise the speaker would have been more sporting and cooperative allowing him access to the complement by uttering a synonymous unraised S [i.e.

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\(^8\) The latter fact is explicitly recognised by Dixon (1991: 223) when he writes that “a Judgement TO clause puts forward a specific assertion”.

\(^9\) Wierzbicka (1988: 164-5) and Langacker (1991: 446-9) also turn to the notions of ‘subjectivity’/’objectivity’ to account for the choice between the ‘complementizers’ to and that.
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a that-complement] that transparently segregates the content of the two clauses. (Steever 1977: 597)

Mair (1990: 198) politely comments that though worth considering, Steever’s ideas are difficult to test empirically. His own stance is that that-clauses focus on the embedded proposition as such and that infinitival complements, “by destroying the syntactic integrity of the embedded proposition”, highlight an entity to be judged and the speaker’s judgement (1990: 200). He adds, however, that the semantic difference between the two constructions is a very delicate one and not carried through systematically by speakers: “[s]tructural, stylistic, semantic and textual requirements need not always coincide, and it is the stylistic freedom of the skilful speaker or writer to strike an appropriate balance between all these requirements when they are in conflict” (ibid.).

3. The textual difference

When Mair refers to “textual requirements” in the last quote he is referring to the fact that the passive version of the believe X to be construction, namely X is believed to be, allows one to move the subject of the complement clause to sentence-initial position, i.e. the unmarked position for information that is contextually ‘given’, and the choice for the infinitival complement with a passive matrix verb can therefore be explained in terms of information structure (along the lines of Bolinger, 1952; Chafe, 1976, 1987; Firbas, 1967, 1992; Givón 1983; Halliday, 1967, 1985: chapter 3; Prince, 1981).

(12) (a) Ruud Gullit could also come on the market after the next World Cup. The AC Milan player, who has not played since last May’s European Cup triumph over Steaua Bucharest because of a knee injury, is involved in a contract dispute with the club. The Dutchman is seeking an extension to his contract, which expires next summer, of three years and £7 million. The club however are believed to be in no hurry to agree until he proves his fitness. (A8N 88)
(b) People believe the club to be in no hurry to agree, however, ...
(c) People believe, however, that the club is in no hurry to agree ...
(d) It is believed, however, that the club is in no hurry to agree ...

Mair (1990: 181) writes:

If the matrix verb is in the active voice, the order of constituents is exactly the same, regardless of whether an infinitival or a finite complement clause is used. In most cases, therefore, the speaker or writer will choose the stylistically and structurally less marked that-clause. But if the matrix verb is in the passive voice, there is a difference. In the infinitival construction, the subject of the embedded clause has been promoted to the rank of subject in the matrix clause, replacing empty it in the process. Given the rigid word order of modern English, such promotion goes hand in hand with a fronting of the promoted item, so that the information
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structure of the sentence with the infinitival complement clause is quite different from that of the sentence with the that-clause.

I would like to contend, however, that information structure-wise the opposition is not between that-clauses and infinitival complements with passive matrix verbs, but between that-clauses and infinitival complements full stop, irrespective of whether the matrix verb is passive or active, and that the passive option is normally only taken to avoid mentioning the active subject because there is no need to mention it or because it is undesirable to do so, or, alternatively, and much less frequently, to highlight a non-topical active subject by using a prepositional phrase, as in (13).

(13) The pineal gland is a small structure buried deep on the brain. Its function in man is not certain. (*It was believed by Descartes to be the seat of the soul.*)

The suggestion that the opposition between that-clauses and to-infinitives after believe-type verbs may have something to do with information structure is not an original one, but an earlier suggestion to this effect has either gone unnoticed or been ignored because of the careful terms in which it was couched. In the chapter on “Constraints on raising” of her 1974 thesis on raising to object position, which was only published in book form ten years later, Ann Borkin included a section on “Discourse-related differences” in which she refers to Kuno’s (1972) four-way classification of the discourse function sentences can have: ‘theme’, ‘contrast’, ‘exhaustive listing’ and ‘neutral description’. Sentences having one of the first three functions “rely on previous discourse to complete their function” (Borkin, 1984: 59), whereas neutral descriptions do not, and Borkin’s intuition was that neutral descriptions “resist Raising” (Borkin, 1984: 60) — i.e., in non-transformational terms, they tend to contain that-clauses rather than infinitival complements — while the subjects of the complement clauses of the previous-discourse-reliant kinds of sentences “can all be raised freely” (Borkin, 1984: 61):

I suspect that Raising does not break up neutral descriptions. The evidence I have is based on very subtle judgments, however, and although it makes sense that a proposition that is largely independent of previously given information should be put into maximal relief as a fully tensed, whole constituent clause, I have found it difficult to construct appropriate examples that people have clear judgments about. (Borkin, 1984: 59)

One of her examples is reproduced here as (14), in which the (b) continuation is “less natural” than the (a) version according to her own judgment, “but although no one has disagreed with any judgments, responses have generally been lukewarmly approving” (Borkin 1984: 60).

(14) What’s new on the research scene?
   (a) Recent research has indicated that air pollution is destroying thousands of acres of timber.
   (b) Recent research has indicated air pollution to be destroying thousands of acres of timber.
I would like to demonstrate that if Borkin had been working in a different research tradition, employing a different kind of evidence, there would have been less doubt in her mind about the influence of discourse function on the choice for one of the two constructions.

A corpus-based textual investigation of about a hundred occurrences each of *believes X to be* and *believes that X is/are* has indeed revealed that the former virtually always (in 81 cases out of 90 = 90%) occur in co-texts like (15)-(18), in which the subject of the infinitive takes up a referent from a preceding clause in the same sentence or from a previous sentence.

(15) Hanson buys firms either because it believes them to be under-managed, or because it believes the firm’s existing managers have over-extended themselves. (ABG 2279)

(16) An unbelievable 40–1 was available with Surrey Racing and this column, for what it is worth, believes this to have been the most outstanding each-way value of the season and a serious each-way proposition. (BN9 512)

(17) Each village believes itself to be totally different from any other and often marks itself off in a variety of symbolic ways from those which surround it. (FPR 464)

(18) Rechem also agreed to drop its request for a judicial review into Torfaen’s monitoring of contamination supposedly caused by the firm, and of its publication of the results. The injunction had forbidden the council from publishing results of monitoring around the site of the firm’s incineration plant at Pontypool, which burns chemicals, including PCBs (polychlorinated byphenyls). Rechem believes the results to be unscientific, [...]. (A2A 555)

In each of these examples the underlined constituents are coreferential. Sometimes such a coreferential constituent is less easy to pinpoint, but then it is either possible to identify a constituent which has very similar reference, as in (19), or the subject of the infinitive summarizes a whole state of affairs expressed in the previous discourse, as in (20).

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10 To make the corpus query produce a maximal number of usable examples semi-automatically, and to compare like with like as much as possible, the following query restrictions were implemented: 1) to avoid passives constructed with *believed*, only instances of *believes* were looked for; 2) to avoid cases in which a dynamic subclause verb is responsible for the choice of a *that*-clause, only forms of *to be* were included in the search; 3) to avoid cases in which tense or modal markers are responsible for the choice of a *that*-clause, only combinations of *believes that* with *is or are* were searched for; 4) both *believes X to be* and *believes that X is/are* patterns were looked for with one-, two- and three-word complement-clause subjects. This produced 90 occurrences with an infinitival complement and 271 occurrences with a *that*-complement. The latter were then randomly reduced to 100 instances, making sure, however, that the original proportion of one-, two- and three-word subjects stayed intact.
The choice between infinitives and that-clauses after believe

(19) These six poems are a brief moment of religious experience in an age that believes religion to be a kind of defeatism and puts its hope for man in finding the right secular order. (A1B 1515)

(20) His energetic, funny and highly entertaining live shows have won wide acclaim and his once sleepy cocoon of fans has begun to form into something bigger and stronger. It’s no longer merely a handful of advocates who wonder why someone with such high-calibre material hasn’t made a bigger dent in the global public’s consciousness. Turner himself is rather philosophical about this question but he’s obviously angry about what he sees as a major failure of imagination on behalf of his record company (RCA in America, Beggars Banquet on this side of the world). In many ways, he believes his situation to be a microcosm of what is happening on a larger scale in the industry. (ED7 2660)

The subjects of that-clauses, on the other hand, take up a referent from the previous discourse much less often. In 36 of the 100 examples they either introduce new referents or re-introduce one that has remained unmentioned for a couple of sentences. Here are a few examples:

(21) Professor Rhys, of Cardiff Business School, points out that the Essex plant is in an area of low unemployment and that the same could not be said of the other big plants. “The reality is that workers at Dagenham can get jobs elsewhere and their colleagues at Halewood can’t,” said Professor Rhys. He believes that training is insufficient at the plant and that morale is at a low ebb, largely because of the working environment and the ageing equipment. (A4W 111)

(22) To maintain hair in optimum condition either prior to or following a perm or colour, it is important to use the correctly prescribed products at home, between salon visits. Redken products are scientifically formulated in their own research and development laboratories, and are not tested on animals. Because Redken believes that the professional stylist is the best person to advise and prescribe for all your hair care needs, Redken products are only available from appointed salons. (C9P 300)

(23) Professor Lear’s assertion that “it is through love that humans, and the rest of living nature, acquire form” seems to me a throwback to a much earlier mode of thinking which, if widely readopted, would be about as intellectually productive as a Romanian state-run steel mill is economically productive. Professor Lear believes that individuation and autonomy are the highest goals of Man and he also believes, along with Socrates, that the unexamined life is not worth living. This is surely arrogance on a pretty preposterous scale. (AHG 537)

Training in (21), the professional stylist in (22), and individuation and autonomy in (23) are all mentioned for the first time in their respective texts. The following extract contains an example of a that-clause subject with a 'look-back' of a few sentences (cf. Givón, 1983: 13):
The large and thriving congregation was stunned by the Jesuits’ sudden announcement, in March 1989, that they were to close and sell off the church on the open market — “for any reasonable use”, according the sale particulars. The congregation, as the Friends of the Holy Name, contacted SAVE for help. Our first step was to get the Department of the Environment to upgrade the building to II* in recognition of its remarkable interior. Secondly, we set about drawing attention, nationally and locally, to a threatened church that simply could not be described as being redundant, having a weekly congregation of over 1,500 worshippers! Although SAVE believes that alternative uses are possible for most types of buildings, including churches, the Holy Name was an exception and our fears for its future increased with rumours of purchase offers from McDonald’s. (AR9 1357)

However, the fact that in 64 cases the that-clause subject does not (re-)introduce a topic indicates that ‘thematic development’ cannot be the only motivation behind the choice for a that-complement. ‘Givenness’ seems almost to be a necessary condition for the choice of an infinitival complement to be possible, and ‘newness’ seems almost to necessitate a that-clause, but that-clause subjects do not need to be ‘new’. Another motivating factor must therefore be involved and it is not impossible that earlier writers’ intuitions that “fusion [i.e. the use of an infinitive whose subject is also the object of the matrix clause] destroys the complement clause as an independent proposition” (Mair, 1990: 197), and that a that-complement puts a proposition “into maximal relief” (Borkin, 1984: 59), play a part in the choice between the two constructions. The result of the choice for a that-complement may indeed be that the embedded proposition receives greater emphasis and the choice might, consequently, not be incompatible with an explanation in terms of Mann, Matthiessen and Thompson’s Rhetorical Structure Theory (or ‘RST’; see, e.g., Mann & Thompson, 1986; Matthiessen & Thompson, 1988; Mann, Matthiessen & Thompson, 1992), which posits that most multi-unit texts consist of ‘nuclear’ portions, which “realize the central goals of the writer”, and ‘satellite’ portions, which “realize goals which are supplementary or ancillary to the central goals” (Matthiessen & Thompson, 1988: 299). In extracts (25) and (26), for instance, the sentences containing the verb believe seem to be fairly essential to the writer’s intentions.

Yesterday we called for the Attorney General, Sir Nicholas Lyell, to examine Courtney’s case following his conviction 15 days ago for two rapes and two indecent assaults. Courtney was sentenced to just seven years for drugging and assaulting four trusting young women at the Harley Street premises where he practised as a gynaecologist. TODAY believes that Courtney’s sentence is too lenient. We pointed out that unless an appeal is lodged within 28 days of the sentencing he could be free in a little over two years. (CBF 10932)

Christopher Norris also reads Derrida in philosophical terms, even though professionally he teaches English in the University of Wales. Unlike Searle he admires Derrida, and believes that he is genuinely concerned with major philosophical questions. (A1A 598)
By contrast, in (27) and (28) the *believe* units seem only to provide support for the central aims realized in other units.

(27) A central feature of the proposals for a European company law has been the desire to encourage worker participation since the Commission *believes this to be* an important factor in firms’ economic success. A number of proposals addressing this issue have been considered including the “Fifth Directive” concerning company structures and the powers and duties of governing bodies. (HXP 197)

(28) It may well be that the reader is expecting the authors to indicate which of these theories best explains the development of the military-industrial complex and how (assuming one *believes it to be* a problem) it can be eradicated. Unfortunately, as we have been at pains to argue, to do so would be only to impose our own interpretation of reality on the reader. (G1G 1110)

Of course, claims that nuclearity is more typical of *believe that* constructions than *believe NP to be* constructions are easily made but less easily verified. To carry out an RST-analysis of some 200 texts would be an enormous task, even if it were possible to produce reliable analyses
d of the fairly short excerpts the BNC client software allows you to download. There might, however, be an indirect, but easily verifiable, way of finding out about the relative “importance” of a sentence. Matthiessen & Thompson (1988) have claimed that ‘subordination’ is a grammaticalization of the Nucleus-Satellite relation. If they are right, and if infinitival complements tend to be less “salient” than *that*-clauses, then the infinitives should more often be part of subordinate constructions (i.e. be subordinate to a subordinate clause) than the *that*-clauses. It turns out that this is indeed the case: 69.2% of all *believe X to be* patterns in our material are part of constructions which are subordinate to another, as in (29) and (30), while 80% of all *believe that X is* patterns operate independently, as in (31) and (32).

(29) And yet she was aware of something lovely somewhere, something that was gone, or hidden, or yet to be attained: she supposed her therapist would say that this unrealistic shard of broken vision dated back to her infancy, when the human animal *believes itself to be* omnipotent, immortal and an integral part of all that is. Her therapist, she thought, was the most depressing person she knew, and that was saying something. (G1D 2244)

(30) The guiding principle is one of minimizing the maximum damage. In practical terms this is translated into the maxim “get it in the bucket”, a rule of par-

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11 See Noël (1989, 1990) for a critique of RST and similar, ‘coherence relational’, approaches to text structure.

12 I will not here go into the nitty-gritty of the distinctions Matthiessen & Thompson (1988: 279-84) make, following Halliday (1985: Chapter 7), between ‘embedding’ vs. ‘clause combining’, and within the latter between ‘parataxis’ and ‘hypotaxis’, and will take ‘subordination’ to refer to both embedded and hypotactical clauses. Though Matthiessen and Thompson’s claim about the correlation between the Nucleus-Satellite relation only pertains to hypotactical clauses, the inclusion of embedded clauses does not drastically affect the figures given below.
particularly important in “one-off” rather than continuing pollutions, since there may only be one chance to sample. Besides, as field staff said, “you can always throw it away later” if the pollution turns out to be unimportant and the officer wants to avoid the trouble of processing, that is, bureaucratically accounting for, his sample. In general, wherever the officer believes a case to be one which may come to his supervisor’s knowledge, it is appropriate to err on the side of caution, to “go by the book” and protect himself from criticism. (FA1 1627)

(31) For the first time the annual incorporates details of the leading cider makers. UK cider sales have risen from 46.5m gallons in 1980 to 76.8m gallons in 1991, and the annual records that sales were up again in 1992. Flemings believes that the cider industry is poised for excellent growth at the (higher margin) premium end of the market. (CBT 1958)

(32) The Electricity Privatisation Bill states that working up to the year 2000 supply companies must buy between 15 and 20 per cent of their energy from non-fossil fuel resources. This sounds like an invitation to buy from renewable technologies until you realise that the intended non-fossil fuel source is nuclear power. Renewable energy is to provide only one per cent of electricity by the end of the century. The Government still believes that nuclear power is the energy of the future that will keep the lights shining brightly and at low cost. (BN4 125)

In relating the preference of the infinitival patterns for subordinate constructions to discourse structure, I am providing an alternative for the suggestion made by Mair (1990: 194) that this preference may have something to do with the avoidance of syntactic complexity: “the more ‘difficult’ nonfinite variants gravitate towards the very few environments in which the use of the less marked finite options would cause gratuitous syntactic complication and processing problems” (cf. examples (10) and (11) above). It is difficult to prove in a non-circular fashion that subordinate clauses fulfil a helping function in relation to clauses which are supposedly more central to the writer’s goals, but I am equally unaware of any experimental psycholinguistic evidence that the catenation of finite verbs in (33)-(36) should be the cause of processing difficulties.

(33) Teachers in east London are set to walk out of schools today if asked to take classes which they believe are too large. (A1J 262)

(34) Mr Major’s strongest words were reserved for what he believes is the threat to the constitution of the United Kingdom — which he described as the “sleeping issue” of the election. (AHX 105)

(35) The historic detail in the Cadfael books is so accurate, and the fact and fiction so skilfully mingled, that many people believe that Brother Cadfael was a real figure. (AJY 2148)

(36) In his statement, Subba Row, who is 57 years old, stressed that he believes that five years in office is sufficient, and that negotiating the International Cricket Conference agreement on South Africa, announced in January, was quite enough to be remembered by. (A2S 227)
The choice between infinitives and that-clauses after believe

In fact, an account in terms of discourse structure might help to explain these far from uncommon “counter-examples” to Mair’s syntactic complexity principle.13

4. Conclusion

With this the last word has obviously not been said about what motivates the choice between believe X to be and believe that X is,14 but if anything, I hope to have shown that a discourse approach might throw more light on the problem than semantic reflection has so far been able to achieve. Claims about the ‘subjectivity’ of the infinitival complement and the ‘objectivity’ of the that-clause are easy to empathize with on the basis of a few well-chosen, simple, extreme, examples, but faced with the reality of the mass of examples provided by a large corpus it is somewhat more difficult to see the semantic wood for the trees. Large corpora do, however, allow you to test earlier suggestions that the choice between the two patterns has an information structural as well as a discourse organizational side to it. Corpus data unmistakably reveal that the subjects of the infinitival complements have almost always recently mentioned referents, while the subjects of that-complements often introduce unmentioned referents, though I have not here applied a rigorous quantitative approach like the one presented in Givón (1983). Corpus data also reveal that the in-

13 I have not systematically tested whether very specific syntactic environments prefer either infinitival or finite complements, but a quick search for what _ believes to be and what _ believes is/are in the 100-million-word BNC produced 16 examples of the former pattern and 12 examples of the latter. Mair’s statements about what is normal and less normal are based on the more than 100 times smaller Survey of English Usage (see Mair, 1990: 13). The results of his very small-scale elicitation and informant tests can be accounted for with reference to information structure. Moreover, in cases like (33) and (34) with that-less complements, believe can be said to be used ‘parenthetically’ – as is evidenced by the fact that writers sometimes use commas (as in (i), comparable with (ii)-(iv)) – resulting in the blurring of the distinction between main and complement clause (cf. Thompson & Mulac, 1991: 316, and Noonan, 1985: 86). The main clause status of the erstwhile complements could be a sign of their nuclearity in the discourse.

(i) She feels that the old-style independent sector, like the wider political movements of which it was part, was important in creating a climate of interest, a sense of the possible without which, she believes, programmes like Out on Tuesday could not have been made. (ATA 274)
(ii) The man had a tough upbringing and, she believes, had almost certainly been abused himself. (B03 1531)
(iii) A nurse who is trained in research methods is ideally placed, she believes, to act as a go-between between doctor and patient. (B7G 479)
(iv) The Princess’s happiness, she believes, should be more important to the British people than the “antiquated charade” of the Royal Family. (CH1 7614)
14 Though only data on believe have been presented here, the argument concerns syntax rather than the lexicon, and the paper should be read as a hypothesis on the syntactic behaviour in discourse not just of believe but of all members of the believe class (see Levin, 1993: 182, or Francis et al., 1996: 99, 295, 600, for lists of its members). A full-scale investigation of the class as a whole is under way (see Noël, in preparation).
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finitival pattern occurs most often in subordinate constructions, whereas the pattern with that usually operates independently. If, as Matthiessen & Thompson (1988) suggest, subordinate constructions realize propositions that are less central to the text producer’s goals, this contrast could indicate that the two patterns play a different prototypical role in the organization of texts. There are signs, therefore, that if there is a difference in meaning between believe X to be and believe that X is, this meaning difference can, in Halliday’s terms, be said to be ‘textual’, rather than ‘interpersonal’. This textual difference might, moreover, lie at the origin of the differences in the syntactic potential of the two complements, for does it not seem reasonable that portions of text that are less central to the writer’s goals — and which (therefore?) do not introduce new referents — need to be less specific than central portions, to the point that semantic modification, for instance by means of adverbials or subclauses, has become ungrammatical with the pattern that prototypically realizes less central goals?

References


Chapter 1

Chapter 2

The proof of the pudding: is prove to be/that like believe to be/that?

1. Introduction

This paper is a snapshot of an on-going investigation (Noël in preparation) into the variation displayed by verbs like believe, declare, find, judge, prove, think, etc. (for a fuller list see Levin 1993: 182 and Francis et al. 1996: 600) between that-clauses and to-infinitival complements, as illustrated for prove in (1) and (2).

(1) Ronnie Wilkie from Pest Control Dundee recently proved that cockroaches are anywhere and everywhere when he signed up for a sizeable job to rid an oil rig off the Aberdeen coast of them. (HBJ 673)

(2) Tests by the Severn Trent laboratories proved Coastguard to be three times as effective against viruses as its nearest rival — yet much less expensive. (K9H 83)

Syntactically, there is no free variation between the two patterns, since there are a number of formal restrictions on the infinitival complement that do not apply to the that-complement: it does not allow the addition of tense markers and modal auxiliaries, and is less tolerant of adverbials and additional subclauses (see Dixon 1991: 238, 1995: 184; Mair 1990: 197, 1993: 7; Noonan 1985: 57). The infinitival complement is normally also incompatible with nonperfective dynamic verbs (but see Mair 1990: 190 for exceptions). On the other hand, Mair (1990: 191 and 1993) claims it to be the preferred option in relative clauses with “raised subjects”. But everything being equal, are there semantic considerations that play a part in the choice between the two constructions?

There have been numerous suggestions on this score (e.g. Borkin 1973: 44; Dixon 1991: 237; Langacker 1991: 446-9; Maxwell 1984; Riddle 1975; Steever 1977; Ureland 1973; Wierzbicka 1988: 164-5), but so far neither of them has acquired received wisdom status (for discussions of some of them, see Duffley 1992: 3 and Mair 1990: 197-8). In an earlier study focusing on clausal complements of believe (Noël 1997), I drew attention to a cautious suggestion by Borkin (1974, 1984) that the choice between the two complements may have something to do with information structure (along the lines of Bolinger 1952; Chafe 1976, 1987; Firbas 1967, 1992; Givón 1983; Halliday 1967, 1985: chapter 3; Prince 1981; but Borkin only refers to Kuno 1972): infinitival complements “rely on previous discourse to complete their

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1 All examples are taken from the British National Corpus. In the source code that follows each example the three positions before the space identify the excerpt it was extracted from (which can be looked up in Burnard 1995); the number following the space is the line number of the example within the excerpt.
function”, whereas *that*-clauses do not (Borkin 1984: 60-61). Her evidence relies on informants’ judgements, which were not very supportive, but my own corpus-based textual investigation of about a hundred occurrences each of *believes X to be* and *believes that X is/are* indeed revealed that the former virtually always occur in co-texts in which the subject of the infinitive takes up a referent from a preceding clause in the same sentence or from a previous sentence, whereas the subjects of *that*-clauses do so much less often (for details, see Noël 1997: 277-8).

To account for the fact that subjects of *that*-clauses after *believe* often do have a “given” referent (though, as said, much less often than those of infinitival complements), and that consequently another motivation must be involved in the choice for a *that*-clause, I rekindled earlier writers’ intuitions that “fusion [i.e. the use of an infinitive whose subject is also the object of the matrix clause] destroys the complement clause as an independent proposition” (Mair 1990: 197) and that a *that*-complement puts a proposition “into maximal relief” (Borkin 1984: 59), arguing that in terms of Mann, Matthiessen and Thompson’s Rhetorical Structure Theory (or “RST”; see, e.g., Mann & Thompson 1986; Matthiessen & Thompson 1988; Mann, Matthiessen & Thompson 1992) *believe that X is/are* constructions may have a tendency to be part of “nuclear” text portions, which “realize the central goals of the writer”, whereas *believe X to be* constructions may tend to be part of “satellite” portions, which “realize goals which are supplementary or ancillary to the central goals” (Matthiessen & Thompson 1988: 299). Assuming that Matthiessen and Thompson (1988) are right that “subordination” is a grammaticalization of the Nucleus-Satellite relation, this was corroborated by the fact that in my data about 70 per cent of all *believe X to be* patterns were part of constructions which were subordinate to another, while 80 per cent of all *believe that X is/are* patterns operated independently (for a more elaborate argumentation, see Noël 1997: 279-280).

The question now is: do other members of the *believe* class of verbs behave similarly? In other words, did the findings about the clausal complements of *believe* with relation to information structure and discourse organization merely reveal something about this particular lexical item, or did they throw light on the discourse/syntax interface and help us move in the direction of an explanation for the variation between these two kinds of clausal complement? The purpose of this paper is to work towards finding the answer to this question by providing data about a second member of the *believe* class, viz. *prove*.

2. *Prove X to be* vs. *prove that X is/are*

2.1. Given vs. New subjects

Information structurewise *prove* is completely in line with *believe*. A corpus-based textual investigation of about a hundred occurrences each of *PROVE X to be* and
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PROVE that X is/are\textsuperscript{2} has indeed revealed that the former virtually always (in 91 cases out of 97 = 93.8 per cent) occur in co-texts like (3)-(6), in which the subject of the infinitive takes up a referent from a preceding clause in the same sentence or from a previous sentence.

(3) No mezuzah on the Caplan door. Why? Because God does not require reminding that we were just as good Jews without ostentation. After all, with a name like CAPLAN clearly shown, centrally, surely visitors would realise we were not Irish. Again, all the boys are circumcised according to tradition, and we do not need to flash the penis to prove us to be nice, Jewish boys. (BN3 186)

(4) This was the Principal Medical Officer? Holman couldn't help but smile. She was certainly sweet, but she looked no brighter than the average housewife. The day would prove her to be otherwise. (FSH 990)

(5) The prediction of the theory, that latent inhibition should be diminished when pre-exposure and conditioning take place in different contexts, thus provoked a new line of experimental work and, as we have seen, the prediction has been convincingly confirmed. But, however suggestive it may be, the fact that a given phenomenon is successfully predicted by a theory does not prove the theory to be correct. (APH 242)

(6) While certain parts of the Convention almost certainly constitute customary international law, that is not necessarily true of all the provisions from which the United States might wish to benefit. If the United States wished to claim such a benefit it should have to prove the particular provision to be customary international law. (EF3 659)

In each of these examples the underlined constituents are coreferential. Sometimes the subject of the infinitive summarizes a whole state of affairs expressed in the previous discourse, as in (7) and (8).

(7) I opposed it from the very beginning. My opposition goes back to 1979 and to the work done in the Department of the Environment when I was in it on the production of the 1981 Green Paper. It stated clearly that a flat rate charge could not cope with the scale of local authority expenditure and that it could not do so fairly. Experience has proved that to be the case. (HHW 5403)

\hspace{1in} \textsuperscript{2} Upper-case PROVE stands for the word forms prove, proves, proving, proved and proven. To make the corpus query produce a maximal number of usable examples semi-automatically, and to compare like with like as much as possible, the following query restrictions were implemented: (1) to avoid cases in which a dynamic subclause verb is responsible for the choice of a that-clause, only forms of to be were included in the search; (2) to avoid cases in which tense or modal markers are responsible for the choice of a that-clause, only combinations of PROVE with is or are were searched for; (3) both PROVE X to be and PROVE that X is/are were looked for with one-, two- and three-word complement clause subjects. This produced 97 occurrences with an infinitival complement and 211 occurrences with a that-complement. The latter were then randomly reduced to 100 instances, making sure, however, that the original proportion of one-, two- and three-word subjects stayed intact.
But space availability is not the only problem surrounding the landfill option. Until recently, it was considered safe and environmentally acceptable to dump household waste in the ground where, left to decay, it would break down into harmless by-products and cause no problems. Indeed, it could even serve the purpose of filling quarry sites and aid landscaping. However, several disasters have proved this assumption to be wrong. (BN4 1022)

As with believe, the subjects of that-clauses take up a referent from the previous discourse much less often. In thirty of the hundred examples they either introduce new referents or reintroduce one that has remained unmentioned for a couple of sentences. Here are a few examples:

Many thatched cottages were built on the brow of a hill overlooking the sea; and a large potato-field, divided into elongated sections, gave ample scope for many Lewis families to prove that union is strength, for they were busily engaged lifting the crop: each family group was complete in itself; those who had the most children got most quickly over the ground: many hands make light work, and young backs bend easily. (B1N 1569)

Undirected thought has been changed to directed thought. Fancy is no longer free. Wells lost his tolerance of contradiction in his anxiety to tidy up the world. His seeking for single solutions coarsened his thinking and sank into abstraction. Among the most engrossing parts of this book are those which demonstrate the confusion of Wells's thought as he seeks to evade conflict, for instance by proving that ethics and evolution are one. (B73 1624)

The RSPCA has condemned a new video promoting the cause of hunting. It’s been produced by the British Field Sports Society, a year after a private members bill to ban hunting narrowly failed in the Commons. The RSPCA says the video proves that the pro-hunting lobby is losing the argument. (BMC 2089)

Union in (9), ethics and evolution in (10), and the pro-hunting lobby in (11) are all mentioned for the first time in their respective texts. The following extract contains an example of a that-clause subject with a “look-back” of a few sentences (cf. Givón 1983: 13):

Direct and indirect taxes: is it better to tax incomes or goods? Let us first consider the impact of imposing a proportional income tax, that is, one that taxed a constant proportion of one's income however high, and raising the same revenue as a tax on one particular product, or a narrow range of products. To take a similar proportion of everyone's income away will not affect individuals' capacities to express their preferences between goods or services though it does bias their choices between goods and leisure. However, to raise the same revenue by concentrating all the tax on one particular product or narrow range of products would change its relative price. This in its turn would change people's pattern of purchases away from that which reflected their true preferences. In theoretical terms this results in a loss of welfare for individuals. However, this does not necessarily prove that direct taxes are more efficient in economic terms than indirect taxes, for the following three
The proof of the pudding

reasons: 1. It is possible for indirect taxes to be levied at an even rate across all goods and services; a sales tax with a single rate of, say, 5 per cent, or value added tax, are examples. (G1C 1105)

As with believe, however, though “givenness” seems almost to be a necessary condition for the choice of an infinitival complement to be possible, and “newness” seems almost to necessitate a that-clause, that-clause subjects do not need to be “new”. In 61 cases they are “given”.3 So could discourse organization again be a second motivation behind the choice between the two patterns?

2.2. Subordination vs. independent patterning

Unlike in the case of believe, the data do not support this hypothesis. PROVE that X is patterns are just as likely to occur as part of subordinate constructions as they operate independently (the distribution is exactly 50/50), and examples like (13) and (14) are just as typical for prove that as (15) and (16).

(13) Considering the importance of the light/dark cycle as a time-cue, we must expect that there will be some sort of link between the body clock and the eyes. It has been shown in some animal species that there are nerves running from the eyes to the SCN. Whilst their presence does not prove that this is how the light/dark cycle normally adjusts the clock, it does seem to make it a very reasonable working hypothesis. (A75 1059)

(14) If one is generous and takes an average, 600,000 to 800,000 jobs would be lost, and the country cannot afford that. A Labour Government would roll over on their back and uncritically accept any proposal from the European Community in order to prove that they are more communautaire than the Conservatives. (HHX 137)

(15) The political activity around Clause 28 was one of the few occasions when lesbians and gay men have worked together and successfully expressed their anger. Whilst AIDS was not well included as an issue in the campaign, it was clearly at the back of every civil servant's mind as the details of the Clause

3 In the remaining 9 cases the subject is neither new nor given, as in (i).

(i) JUST to prove that there is life after rugby, last year’s Grand Slam coach Roger Uttley decided to forsake this season’s Paris showdown in favour of an altogether different sort of grunt-and-grind in Boston. (CB2 195)

Interestingly, cases of PROVE there to be do not occur, perhaps indicating another “formal” motivation for choosing a that-clause. The pattern does occur after believe, though:

(ii) Their understanding of social action is a “realist” one, in so far as they believe there to be general, deep-lying mechanisms affecting human conduct which are triggered in different ways by contingent social circumstances. (HRM 1084)
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were worked out. This campaign may have definitively proved that HIV and AIDS is not a specifically gay issue. (C9S 1169)

(16) Mr Carnford, the lawyer, was very happy to rent the house to him. “I’d be glad to let you have it free,” he said, “just to have somebody living in it again after all these years. It’s been empty so long that people have spread a lot of foolish stories about it. You’ll be able to prove that the stories are wrong.” (H9U 392)

Contrary to expectations as well, PROVE X to be patterns more often than not operate independently (in 62 of the 97 cases = 63.9 per cent), and cases like (17) and (18) occur more often than cases like (19) and (20).

(17) All the chairmen made an effort to reply to inaccurate or unverifiable press criticism, and to stress their Boards’ positive work in maintaining supplies in difficult conditions of great austerity, but experience proved truth to be of only limited effectiveness against prejudice. (CRD 456)

(18) Even given that all the changes worked, would such a new strategy pay? Every new development costs money and every new product into the market has a launch cost. Was it really possible to command such a premium price that one could recover the extra investment? We doubted that it was technically possible, or that there would be a niche for such a business, but they proved us to be wrong and that was the beginning of the launch of Tactel, our highly successful family of fibres for leisurewear, the ICI record campaign, and so many more besides. (EA8 434)

(19) “I would like to think it’s a bit like Disney — it keeps going without its creator.” The latest venture, Salsa!, a Latin American/Caribbean restaurant on the site of the Chicago Meatpackers restaurant, is entirely Peter Webber’s concept, however. “This is one of the outlets which has proved the location equation to be correct,” he says. (HC4 255)

(20) Things might have happened just as he says. Causation or some of it might have come to an end just when I set out to snuff the candles, or never existed. Despite what has been said (p. 50) about an inference from our conception of causation to a conclusion about the nature of reality, our present concern is that conception. We are not engaged in proving the universe to be nomic, or defying it to step out of line. We are examining one of our fundamental conceptions of it. (EVX 948)

Whether this distributional difference between prove and believe refutes the hypothesis put forward in Noël (1997) remains to be seen, of course, and a decision will have to await similar investigation of additional members of the believe class (see Noël in preparation). It might turn out that prove is a less typical member of that class. After all, unlike many other members of the class, prove is not an “opinion verb”.

2.3. Is there a lexical difference?
The proof of the pudding

But, if not “discourse organization”, then what determines the choice between the two patterns in the case of prove, in addition to information structure? Could it be that each pattern goes with a different meaning of the verb? This is indeed what is suggested by The Cambridge International Dictionary of English, which makes a distinction between two meanings, which it glosses with the “guide words” show and true. The first meaning is described more elaborately by “to show after a time or by experience that (something or someone) has a particular quality”, the second use is not described any further but is listed under the noun proof, described as “one or more reasons for believing that something is or is not true”. The interesting thing is that there are no examples of PROVE that X is to illustrate the first use, and no examples of PROVE X to be to illustrate the second.

Our material reveals that this is a simplification and that both patterns can express both meanings; compare (21)-(24), which exemplify the ‘show’ meaning, with (25) and (28), which are illustrations of the ‘true’ meaning.

(21) Contemporary Marxist urban sociology places much less emphasis on the supposed necessity for the state to be engaged in collective consumption. This, of course, reflects recent social change. “Recommodification” or privatisation in many fields of collective consumption (such as, for example, public sector housing provision) has clearly proved state intervention to be not “necessary” for successful capital accumulation. (HRM 1629)

(22) This gripping novel opens our eyes to another world, yet its themes are ones we all know. Winnie is revealed as a woman of quiet fortitude who has endured almost unbearable suffering and sadness. But her sense of humour, courage and ability to love help her to survive those terrible years until she finds the happiness she deserves. With this second novel, Amy Tan has again proved herself to be a first class writer, one who can write books which not only have enormous popular appeal, but also teach us something new about the human condition. (G2V 1389)

(23) It was always going to be a tough qualifying group with Italy, Portugal and Scotland fighting for the two places. Now Switzerland, under the management of my old friend Roy Hodgson, have made life even harder. Their 6-0 win in Estonia and 3-1 win on Wednesday prove that they are no pushovers. (HAE 866)

(24) The CB METALS range has produced outstanding results over the year and I would like to think that it is now the yardstick among fishkeepers. Our range of reverse osmosis units has met with considerable interest and just proves that it is no good trying to adapt unsuitable systems to the fishkeeper — they need and deserve purpose-built items. (CGH 448)

(25) Berkeley's suggestion that particular, non-abstract ideas can be general in their use enables him to do this. Geometrical demonstrations which prove something to be true of all triangles do not do so by proving it to be true of an abstract triangle to which all triangles correspond. (ABM 1543)

(26) What we need to consider now is the possibility that discrimination training also allows processes to operate that modify the distinctiveness of the stimuli themselves. Changes in stimulus distinctiveness might, indeed, be in part re-
sponsible for the development of different patterns of overt behaviour to the different training stimuli, but the mere fact that discrimination learning occurs cannot prove this to be so. (APH 1029)

(27) However, the excesses of “pop socio-biology” should not, as Carrithers points out (in this volume), lead us to a wholesale rejection of the evidence for certain genetically transmitted predispositions in the human animal. To assert that all normal human behaviour is culturally moulded does not necessarily prove that it is also culturally determined. (CJ1 232)

(28) Body image. — Bruch suggested that body image disturbance is pathognomonic of anorexia nervosa and that this is shown by indifference to emaciation and a misperception of body size. Experimental evidence has provided some support for attitudinal and perceptual disturbances; however, the current methodologies have failed to define adequately the body-image construct or to prove that disturbances are unique to anorexia nervosa. (HWW 741)

However, the infinitival pattern does display a preference for the ‘show’ meaning (72 cases out of 97 = 74.2 per cent), while the that-clause pattern more often expresses the ‘true’ meaning (60 cases out of 100).

The data in the following table\(^4\) may suggest that this lexical factor either strengthens or weakens information structural and discourse organizational motivations for choosing between the two patterns. For instance, most “given” subjects of infinitives go with the ‘show’ meaning (both factors work together), whereas most “given” subjects of that-clauses go with the ‘true’ meaning (the lexical factor overrides the informational factor); most infinitives that are part of subordinate constructions go with the ‘show’ meaning (both factors work together), but so do most infinitives that operate independently (the lexical factor overrides the discourse organizational factor), while most that-clause patterns which are part of subordinate constructions go with the ‘true’ meaning (the lexical factor overrides the discourse organizational factor).

<table>
<thead>
<tr>
<th>factor combinations</th>
<th>PROVE X to be</th>
<th>PROVE that X is/are</th>
</tr>
</thead>
<tbody>
<tr>
<td>given + true</td>
<td>21.6</td>
<td>39</td>
</tr>
<tr>
<td>given + show</td>
<td>64.9</td>
<td>17</td>
</tr>
<tr>
<td>new + true</td>
<td>1.0</td>
<td>11</td>
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<tr>
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<td>4.1</td>
<td>19</td>
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<tr>
<td>subordinate + true</td>
<td>9.3</td>
<td>35</td>
</tr>
<tr>
<td>subordinate + show</td>
<td>26.8</td>
<td>15</td>
</tr>
<tr>
<td>independent + true</td>
<td>16.5</td>
<td>25</td>
</tr>
<tr>
<td>independent + show</td>
<td>47.4</td>
<td>25</td>
</tr>
</tbody>
</table>

3. Conclusion

\(^4\) All figures are percentages.
The proof of the pudding is in the eating, and this study on prove and the earlier one on believe (Noël 1997) are only two small steps in the testing of the discourse/syntax hypothesis on the choice between infinitival and that-clause patterns after believe-type verbs. The role of information structure seems to be confirmed by the present study: prove and believe behave similarly in this respect. No corroboration was found, however, for the proposed role of discourse organization, but for the time being an interfering lexical factor is held responsible.

References


--. In preparation. Infinitives vs. that-clauses after believe-type verbs.


Chapter 3

Is claim a believe-type verb? Further proof of the pudding

1. Believe-type verbs

Verbs like believe, consider, estimate, prove, show, think, report, understand, and a good many others “concerned with thinking, saying, or showing something” (Francis, Hunston & Manning 1996: 295), are all, to a greater or lesser extent, “reporting verbs” (Sinclair et al. 1990: 314) which alternate that-clauses with so-called “accusative and infinitive” complements (for lists of verbs that display the alternation, see Hudson 1971, Postal 1974, Levin 1993 and Francis et al. 1996):

(1) a. The Government believed that postal ballots were essential for the nation’s industrial recovery and regeneration, Mr Galbraith said. (K5D 4065)
    b. Middle class feminists asked for the repeal of all protective legislation because they believed it to represent one of the barriers to female employment. (GUW 1170)

(2) a. I consider that ethically a human person is created when the sperm of a male fertilises the ovum of a woman, thus creating an embryo... either in the fallopian tubes or in vitro. (A96 268)
    b. Did he consider her to have no good qualities at all, to be so scornful of her? (HH1 2569)

(3) a. The ANC estimated that more than 4,000,000 people heeded its strike call, while the South African Chamber of Business estimated that the strike was observed by half that number. (HLN 180)
    b. She was squatting down in the photograph and Sabrina estimated her to have been a little over five feet with a slender petite figure and a pale, milky complexion. (ECK 2406)

(4) a. Numerous X-rays showed that Joanna had a broken left leg and had fractures to several ribs as well as her spine. (A70 767)

1 The research reported on in this paper was made possible by the Research Fund of the University of Ghent (Bijzonder Universitair Onderzoeksfonds contract nos. 12052095 and 12050399). The paper is based on a lecture given in the Department of Germanic Languages of the University of Antwerp (UIA) on 26 March 1999. I am grateful to Johan van der Auwera for his comments on this occasion.

2 Unless specified otherwise, all examples are taken from the 100-million-word British National Corpus (BNC) (for a description of the corpus, see Aston and Burnard 1998). In the source code that follows each example the three positions before the space identify the excerpt it was extracted from (which can be looked up in Burnard 1995); the number following the space is the line number of the example within the excerpt.
b. Chemical analysis of coals after heating at 400°C for three days showed them to have a residual gas-generating capacity. (B2J 1165)

The choice between the two complements has in the past been attributed to a different semantics, the prevailing characterization being that that-clauses imply objectivity and infinitival complements subjectivity (see, e.g., Borkin 1973: 44; Riddle 1975: 473; Wierzbicka 1988: 164-5; Mair 1990: 200; Langacker 1991: 446-9), but though it may be possible to make intuitively appealing (though regrettably not testable) claims of this kind on the basis of a few carefully selected (or invented) examples, such claims do not pass muster with linguists who allow themselves to be confronted with the mass (or mess) of real occurrences provided by large corpora (see Mair 1990: 196-200 and Noël 1997: 273-275 for a discussion of the semantic accounts referred to, in addition to a few others). Such corpora do reveal, however, that the distribution of the two patterns can be linked to ‘textual’, rather than ‘interpersonal’, factors (in Halliday’s terms; see, e.g., Halliday 1994). Elsewhere (in Noël 1997 and 1998a), I have established that the subjects of the infinitival complements of believe and prove typically have ‘given’ referents, whereas the subjects of their that-clauses more often introduce ‘new’ referents, or reintroduce one that has remained unmentioned in the text for a couple of sentences. Further research has confirmed this for other members of the believe class. In a database I have collected of over a thousand paragraph-length extracts from the British National Corpus containing occurrences of believe, claim, judge, prove, show, and think with clausal complements, 91% of all infinitival complements have given subjects (as in (5) and (6), in which the underlined constituents are coreferential), while 35% of all that-clause subjects do not take up previously/recently-mentioned referents (as in (7) and (8)) (see Table 1).

(5) During his retirement in Chelsea, when well over eighty, Sir Hans directed the arrangement of his enormous natural history collections from a wheelchair. Many famous people came to view the grandiose exhibition: the Prince of Wales judged it to be “an ornament to the nation”, as indeed it was to become. (ALU 164)

(6) Immoral or antisocial conduct demands an explanation in terms of inherently unobservable causes, be they “motives”, “intentions”, “desires”, “proclivities”, “spirit attack”, “witchcraft”, “disorders of the humoural system”, and so on. What is more, the same conduct may be subjected to a series of different interpretations as subsequent events show it to be part of a pattern of conduct or as an isolated instance, as implicating a wider or narrower range of social relationships, and so on. (CJ1 880)

(7) Those wanting to voyage further than comparatively familiar delicacies such as coppa, pancetta or fennel-flavoured salami, should look upwards. At certain times of the year, hanging from the ceiling amid the festoons of dried sausages, cheeses, onions and garlic, will be a haunch of wild boar. When manager Victor Contini judges that the moment is right, the haunch is brought down to be skinned, boned, cured and thinly sliced like Parma ham. (A3C 375)

(8) Sainsbury, for example, defend the sky-high price of their organic vegetables by saying that they take less percentage profit on them, and that the wholesal-
Is claim a believe-type verb?

ers seem to be the ones jacking up the price. But how can courgettes, which are sold by the grower at, say, 25-30p a lb at the most, end up on the shelves at Safeway for £1.16 per lb? Two recent surveys clearly show that many shoppers are willing to pay more for organic food. But how much more? (ARJ 2608)

Table 1: ‘Given’ vs. ‘new’ complement subjects with believe, claim, judge, prove, show, and think. 3

<table>
<thead>
<tr>
<th></th>
<th>‘given’</th>
<th>‘new’</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>that-clause</td>
<td>334 (65%)</td>
<td>179 (35%)</td>
<td>513 (100%)</td>
</tr>
<tr>
<td>infinitival</td>
<td>375 (91%)</td>
<td>35 (9%)</td>
<td>410 (100%)</td>
</tr>
</tbody>
</table>

Chi-square (df=1, N=923)=89.0, p<.001

To account for the many that-clause subjects that take up given referents, I have hypothesized that the finite pattern typically operates independently, whereas the infinitival pattern more usually occurs as part of subordinate constructions. This was confirmed for patterns with believe (see Noël 1997), but not for patterns with prove (see Noël 1998a). When all verbs in the database mentioned above are considered together, however, the hypothesis remains confirmed. 67% of all that-clause patterns operate as main clauses (as in (9) and (10)), while 53% of all infinitival patterns are part of subclauses (as in (11) and (12)) (see Table 2). 4

(9) So the Federal Reserve board, which carries the main responsibility for general oversight over credit legislation, judges that credit scoring is the most accurate way of discriminating between good and bad payers. (CCT 1216)

(10) The Greenham Common women protesting against the siting of US missiles in Britain, have produced very interesting accounts of their actions and they have, of course, been widely reported and represented on all the mass media. In their own words they show that they are putting into practice feminist theo-

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3 N does not add up to over a thousand here because ‘empty’ subjects and subjects filled by indefinite pronouns, as in the following examples, were not taken into account: So long as we judge there to be a need for government and common policies, democratic principle will require that minorities have to accept majority decisions to which they are opposed (EVP 862); They would support the union if they thought it to be in their interest to do so (AC2 2296); Geometrical demonstrations which prove something to be true of all triangles do not do so by proving it to be true of an abstract triangle to which all triangles correspond (ABM 1543).

4 Another way of reading Table 2 is that the hypothesis is confirmed for that-clauses, but not for infinitival complements, i.e. patterns with that prefer main clauses, but patterns with an infinitive do not care either way. The low percentage value for infinitival patterns in subclauses can, however, be attributed to two verbs only, prove and show, whose infinitival patterns prefer main clauses (in 67% and 71% of all investigated cases respectively). Both verbs are used to report on evidence, and as such are often used in scientific texts, whereas the others report on opinions. Lexical and/or text typical factors could have an influence here (see also Noël 1998a).
Chapters and analyses of the world, especially the world of male power exemplified in defence strategy and in the courts: ... (EFB 479)

(11) With the collapse of Britain's membership of the European Exchange Rate Mechanism on Wednesday, 16 September 1992, the trend towards monetary integration was in theory temporarily halted. However, the Government made it plain that they intended to go back into the ERM when they judged the moment to be right. (H91 267)

(12) The choice of starting and finishing places was arbitrary — the desert does not begin at a defined line. Kano, the end of the camel routes, seemed to be the obvious terminus. There were a few suitable towns at which to start but we chose Beni Abbes because the map showed it to be two thousand miles from Kano. (AT3 156)

Table 2: Patterns with believe, claim, judge, prove, show, and think operating independently vs. as part of subclauses

<table>
<thead>
<tr>
<th></th>
<th>main clause</th>
<th>subclause</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>that-clause</td>
<td>391 (67%)</td>
<td>190 (33%)</td>
<td>581 (100%)</td>
</tr>
<tr>
<td>infinitival</td>
<td>201 (47%)</td>
<td>224 (53%)</td>
<td>425 (100%)</td>
</tr>
</tbody>
</table>

Chi-square (df=1, N=1006)=40.55, p<.001

Another characteristic shared by many believe-type verbs is that their infinitival complements are more often preceded by a passive complemented verb than an active one, making the [a] sentences in (13) to (16) more usual than the [b] sentences. A large-scale corpus study of the sixty-odd believe-type verbs mentioned by Postal (1974: 297-317) has revealed that, all in all, passive matrices introduce infinitives three times more often than active matrices (see Noël 1998b for detailed figures about individual verbs).

(13) a. Tropical Plant Rentals, acquired in October 1988 for $41.5m, is believed to have accounted for a decline in margins in Rentokil's environmental services division from 25.8 percent to 23.1 per cent in the first half of 1989. (A1S 73)

b. Although he agreed that the legend was a piece of fiction, he believed it to have originated with someone unacquainted not only with the real history of the abbey but also with history in general, probably a professional itinerant storyteller in the middle to late sixteenth century. (BPK 149)

(14) a. Although the Victorian era is considered to be the great age of plant collectors, the ancient Egyptians recorded plant collecting expeditions in their hieroglyphics. (AOG 130)

b. He considered the earthworm to be the most important animal in the history of the world. (A7D 219)

(15) a. Greenpeace has published an analysis showing that an illicit trade in toxic waste exists which is estimated to be three times larger than the legal trade. (J2N 655)
Is claim a believe-type verb?

b. Although no exact figures on EDS’ Italian revenues in 1992 were available, an EDS spokesman estimated them to be $20m, most of which are General Motors Corp-related. (CNK 135)

(16) a. It has been thought that Freud was assuming that there can be inheritance of acquired characteristics, an idea shown to be fallacious in modern biology. (ECY 756)

b. A medical certificate showed Zhivkov, 79, to be suffering from a range of physiological and nervous complaints. (HL8 1918)

The above statistics on the information value of the subjects of clausal complements only pertain to complements with active matrices, but as such they help to explain this predominance of passive matrices (as argued in Noël 1998b). If the subjects of infinitives are typically given, then the redundancy in referential cohesion resulting from the givenness of both the matrix and the complement clause subjects could make the active pattern a dispreferred one. Their givenness also makes these complement subjects strong competitors of the matrix subjects for sentence topic/theme status, and their sentence initial position, made possible by the passive matrix, is often required to ensure the fluent ‘thematic progression’ of the text. In (17), for instance, the passive he was judged sees to it that the sentence it is part of has the same topic/theme as most other sentences in the text and avoids reference to a non-topical/non-thematic entity (compare the original [a] version with the altered sentence in [b]). Likewise in (18) the two passives shown to be prevent the people who are doing the showing from becoming topical/thematic entities.

(17) a. Born in Plymouth, Devon, to a poor stonemason, also called John and his wife Elizabeth, John Kitto was a sickly lad who cared for nothing but books. Between his eighth and twelfth years, he was at four Plymouth schools, and then, not even on a regular basis; he only attended when his grandmother could get together the few pence required to pay his fee. This was all the education that he had. At the age of 12, Kitto was taken on by his father to assist him in his trade, and it was shortly afterwards when he was working for his father slating a new roof that he lost his footing in the act of stepping off a ladder and fell thirty-five feet to the ground. In his book Lost Senses Kitto relates his feelings and impressions when awakening from the coma caused by his fall, and how when he demanded that people around his bed speak to him, someone wrote on a slate, “YOU ARE DEAF”. Kitto never heard sound again. Being now unfit to work, he was left to spend his time as he pleased, and he devoted himself to reading, selling scraps of old iron and painting children’s books and shop labels to raise the few pence needed to buy the books. In November 1819 the poverty of Kitto’s family finally forced them to send him to the workhouse, where he was set to learn shoe making. After two years, he was judged to have learnt sufficient skills, and was apprenticed to a Plymouth shoe maker who treated him so harshly and

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5 I am, of course, not claiming that this redundancy leads to ungrammaticality.
badly that he was re-admitted to the workhouse where he stayed until he was 19 years old. (BM9 245)

b. After two years, the people at the workhouse judged him to have learnt sufficient skills...

(18) a. 9. Surgical Transplantation.
Organs and tissues can be transplanted successfully from one person to another and many lives are now saved as a result. The vast majority of the biomedical research that made this possible was carried out on animals. About thirty years ago it was first demonstrated that a drug, 6-mercaptopurine, suppressed the immune response to bovine serum albumen in the rabbit. This promptly led to the demonstration that the drug suppressed the otherwise rapid rejection of a kidney grafted from one dog into another dog. Other drugs, such as azathioprine were soon shown to be even more effective; and azathioprine was very quickly used for human kidney transplants, and produced a dramatic improvement in their survival. The drug cyclosporin was then shown to be a particular effective immunosuppressive agent as a result of extensive experiments on mice, rats, dogs and pigs. (J2D 83)

b. Researchers/scientists/... showed other drugs, such as azathioprine, to be even more effective; and azathioprine was very quickly used for human kidney transplants, and produced a dramatic improvement in their survival. Researchers/scientists/... then showed the drug cyclosporin to be a particular effective immunosuppressive agent as a result of extensive experiments on mice, rats, dogs and pigs.

In other words, these reporting verbs are often used in contexts where the reporter does not have a very salient role in the discourse, but is subordinate to the discourse theme/topic (cf. Biber 1988: 153, 228).

As an additional explanation for the predominance of passive matrices before infinitival complements, I have hypothesized (in Noël 1999a) that these matrices may be undergoing a re-analysis process as a result of which they are getting to be grammaticalized as auxiliary-like evidentials, i.e. as modifying elements that express the kind of evidence a speaker/writer has for making factual claims (cf. Anderson’s 1986 definition of evidentials). Function words have a higher frequency than content words, and the hypothesized grammaticalization of these passive matrices into a sort of function word could therefore be a contributing factor to their high frequency. The evidence I adduced for their re-analysis as auxiliary-like elements is that though be and have are the dominant verbs in all infinitival complements, irrespective of whether their matrices are active or passive, passive matrices are more tolerant of lexical infinitives than active matrices; and when active matrices are followed by lexical infinitives, these are almost always stative, whereas dynamic infinitives are not uncommon after passive matrices (for detailed statistics, see Noël 1999a). Here are a few examples of both active and passive matrices with lexical infinitives:

(19) a. The massive violation of human rights around the world — some 90 countries are believed to practice torture — means that escape and
Is claim a believe-type verb?

exile is the only hope for many survivors of that oppression. (A7G 866)

b. Abrams believed neighbouring to hang on a dilemma which those who live near to each other have between the need for support in times of crisis and the need for privacy. (CS7 434)

(20) a. In some services, for example the making of monetary payments through social security in Britain, the necessity for equal treatment throughout the country is considered to override any benefits to be gained from local government involvement and discretion. (ED5 674)

b. Certainly all known societies distinguish between night and day and most consider night to possess sinister qualities (often connected with the suspension of regular social intercourse). (CS0 1434)

(21) a. Honey face saver: legendary as a treatment for ailments such as sore throats and hayfever, honey has also been shown to heal burns and can sort out dry and spotty skin problems, so get stuck in! (CDH 144)

b. The largest of [these islands], Krakatoa, was known to be about nine kilometres across from north to south and the British Admiralty charts showed it to consist of several volcanic cones arranged roughly in a line. (ASR 377)

Further evidence of the re-analysis of passive matrices as modifying elements with an evidential function can be provided by contrastive data, more particularly data from translation corpora. If these passive matrices are evidentials, they should not form part of the main predication of the sentence, and this could be evidenced by the fact that they are more often left untranslated than active matrices (see Noël 1999b, which uses data from the online English-French Canadian Hansard corpus). In addition, their evidential nature is confirmed by the fact that in source/target text pairs they are regularly matched by source or target language elements which have an unmistakeable evidential function (again see Noël 1999b). Examples (22)-(24) are illustrations of unmatched passive matrices; examples (25)-(27) illustrate passive matrices matched by clear evidentials (conditionals and the patterns semble-t-il and paraît-il).\footnote{All bilingual examples are taken from the Canadian Hansard corpus, which consists of aligned translations of Canadian parliamentary debates that took place from 1986 to 1993. The concordancing was carried out at the Laboratoire de Recherche Appliquée en Linguistique Informatique of the University of Montreal and the corpus can be consulted through their Web site (http://www-rali.iro.umontreal.ca/TransSearch/). The translations are between English and French, and amount to “several dozen million words in each language”, which makes it the largest bilingual English-French corpus available to date.}

(22) a. Interestingly enough, just a couple of days ago there was a report in The Ottawa Citizen on a Canadian company which also has plants in the United States, Campbell's Soup. The report stated that 70 per cent of the Campbell's workers were found to have some sort of difficulty adapting to changes in the workplace and changing jobs within the workplace.

Interesting enough, just a couple of days ago there was a report in The Ottawa Citizen on a Canadian company which also has plants in the United States, Campbell's Soup. The report stated that 70 per cent of the Campbell's workers were found to have some sort of difficulty adapting to changes in the workplace and changing jobs within the workplace.
b. Il est intéressant de noter qu'il y a environ deux jours, en lisant le "Citizen", j'ai vu un article sur une entreprise canadienne et aussi américaine, Campbell Soup, où il était dit que 70 p. 100 des travailleurs avaient des difficultés d'un ordre ou d'un autre à s'adapter aux changements en milieu de travail, dont les changements de postes au sein de l'entreprise.

(23) a. This is important because one of the reasons Teleglobe is reported to have been sold for such a modest price is the alleged threat of bypass by the Canadian telephone companies.

b. C'est un facteur important parce que Téléglob a été vendue à un prix aussi faible notamment à cause de la possibilité que les compagnies de téléphone du Canada aient recours à un autre réseau.

(24) a. At the same time, since the report was said to have called for major initiatives, I asked what corrective or remedial action would be formulated, or what is being planned to put into place a program of action to finally clean up the Niagara River and the Great Lakes water basin with its untold number of pollutants?

b. Comme le rapport recommandait de prendre des initiatives importantes, j'ai demandé quelle mesure était proposée ou prévue pour débarrasser la rivière Niagara et le bassin des Grands lacs de ces énormes quantités de substances polluantes?

(25) a. In Nova Scotia, my own province, 39,000 families were found to be in poverty.

b. Dans ma province, soit en Nouvelle-Écosse, 39000 familles vivraient dans la pauvreté.

(26) a. Just this very week the hon. member for Esquimalt--Juan de Fuca wanted the Minister of State for Small Businesses, or for that matter the Minister for International Trade, to table in this House documents which are reported to be available to Mexican politicians with respect to the negotiations going on now between Canada, the United States and Mexico.

b. Cette semaine, le député de Esquimalt--Juan de Fuca a demandé au ministre d'État aux petites entreprises ou, en fait, au ministre du Commerce extérieur, de déposer à la Chambre des documents qui, semble-t-il, ont été remis aux politiciens mexicains relativement aux négociations qui se déroulent actuellement entre le Canada, les États-Unis et le Mexique.

(27) a. In the United States it is said to be a ticket to oblivion politically, and restraint is also said to be unpopular.

b. Aux États-Unis, c'est le meilleur moyen pour un candidat politique de sombrer dans l'oubli, paraît-il, et l'austérité n'y serait pas populaire non plus.

In the remainder of this paper I will investigate whether all this also holds true for the verb claim, which is not always recognized as a believe-type verb.
2. Is claim a believe-type verb?

The verb claim is not among those listed by Postal (1974), Levin (1993) or Francis et al. (1996) as verbs that alternate a that-clause with an infinitival complement of the kind we are dealing with here. All English learner’s dictionaries do mention an infinitival complement for claim, but not one with a subject as in the examples above, but subjectless infinitives as in Mr Klaus and his supporters claim to be the “real” liberals (ABD 1589). According to Hudson (1971: 223), however, claim is a believe-type verb (which he terms “cognition”-type verbs), but the only one, in addition perhaps to admit, which takes an infinitival complement with an “optional” subject. Mair (1990: 175f.) found two instances of active claim with an accusative and infinitive in the Survey of English Usage (comprising 895,000 words at the time), but no passive occurrences. A query for both the active and passive pattern in the more than a hundred times larger British National Corpus has, however, produced enough examples of both patterns to include claim in the class of believe (see below for figures). Let us now see whether it shares the characteristics I have earlier hypothesized this class to possess (summarized in section 1), so as to provide further proof that these characteristics do not so much concern lexis (i.e., individual lexical items) as the discourse-syntax interface.

2.1. Information structure

A BNC query for CLAIM NP to be produced 33 matches. In 29 cases (potentially 88% if there had been a total of 100 cases or more) the subject of the infinitive takes up a referent from a previous clause or sentence (as in (28) and (29)). In only two cases can the subject be said to introduce a new referent (viz. (30)) or reintroduce one that has remained unmentioned for a couple of sentences (viz. (31)).

(28) The attitude of many older musicians and critics to science and technology is nothing more, of course, than the stale residue of the romantic, fin de siècle aesthetic that, in the phrase of Villiers de L’Isle-Adam, claims science to be “the religion of the suburbs”. (ADP 318)

(29) Like Snow White’s wicked stepmother, she has not only abandoned her adopted heir to the company of dwarves; she lives in terror that he might yet...
be more admired and loved than she. For, like the most envious of stepmothers, she does not really want to leave anything worth having to John Major at all; she wishes to live in Thatcherland, surrounded by mirrors all perpetually claiming her to be the one and only. (CAJ 953)

(30) Universals, in contrast to particulars, are said to be merely “exemplified” or “illustrated” at various places. This is often used as an argument in support of the view that universals (as well as logical individuals) cannot be ontological existents. All this accords well with common sense. Thus the tendency, normally, is to take the view that a condition of significantly claiming x to be actually existent is that it should be possible to ask “Where is x?”. (FTV 826)

(31) On the other hand, the elderly with descendants are the majority. It is worth noting too, that with higher marriage rates and less involuntary childlessness, they will constitute a rising proportion of those entering later life. In all other respects, however, our group seem to present a typical spread, excluding only the very small minority too seriously ill to be interviewed. We cannot claim these life stories to be “representative” in the strict social scientific sense, but we do believe them to be “valid”. (AP7 284)

Subjects of that-clauses, on the other hand, introduce new referents or reintroduce referents that remained unmentioned for a few sentences in 29% of all investigated cases.\(^\text{10}\) Examples are (32) and (33).

(32) WHAT A CARRY ON
FRENCH OBSTETRICIAN and natural childbirth guru, Michel Odent, claims that men are increasingly falling victim to “couvade”, literally, hatching pains. According to Odent, fathers not only groan with a miscellany of aches and pains before, during and after the birth of a child, but also put on weight beforehand, then top it off with post-natal depression. (FBM 4065)

(33) He had already edited several popular movie magazines, but it was because of Bazin’s reputation as a theoretician that this new one, more highbrow, attracted from its first publication in 1951 a group of young, enthusiastic and iconoclastic critics. By the middle of the decade, they had formulated their auteur theory, which gave a new gloss to film studies. They claimed that the director was the sole author of his films, and that the more strongly his personality and preoccupations were found in them, the greater he was. (A3F 109)

\(^{10}\) In this case there were over 100 cases. A query for CLAIM that NP is/are/was/were, in which the NP was again a one-, two-, three- or four-word subject, produced 1230 matches. Of the 200 that were randomly selected for investigation (keeping the original proportion of every subject-size) 172 were usable; the others were either examples of it is claimed that..., the noun claim followed by that, or that was followed by a subclause as in He “proves” the bowl shape of the Earth by claiming that if it were flat, the sun would rise simultaneously in all places (BM8 517).
Is claim a believe-type verb?

2.2. Taxis

25 of the 33 CLAIM NP to be patterns (potentially 76%) are part of subordinate constructions (as in (28)-(30) above, and (34)-(35)), while 69% of all CLAIM that constructions operate independently (as in (32)-(33) above, and (36)-(37)).

(34) Times 4 October
Waste and Recycling
McDonald's plastic containers to go
McDonald's finally bowed to consumer pressure and announced the abolition of the polystyrene boxes that contain its hamburgers. For years, the US's biggest fast food company has staunchly defended its right to use the plastic box in its restaurants, claiming foam packaging to be not only the best deterrent for grease and insulator of heat, but environmentally sound too. It has not reneged on any of its claims, but, with the box having become a symbol of the garbage crisis, it concedes that "our customers just don't feel good about it". (J2P 657)

(35) The best reason for wanting some account of certainty in our analysis of knowledge is that people are rightly hesitant to claim knowledge when they are less than certain. This hesitation seems to be due to something about what knowledge is, and there is no obvious way to explain it if knowledge is as the tripartite conception claims it to be. (F9K 355)

(36) Biological and Psychological arguments
These arguments suggest that the biological and/or psychological make-up of women does not predispose them to criminality to the same extent as men. Until recently differences in the rate of crime between the sexes was generally explained as being due to biological or psychological differences. Lombroso, whose somewhat bizarre theories of crime and criminals we looked at in Chapter Two, claimed that "a delinquent woman is more unnatural than a delinquent man". (B17 825)

(37) The tragedy of Cyprus
In his "analysis" of the situation in Cyprus, Jerry Gustafson (Letters, February 23rd) claims that Turkey's only crime is to protect the rights of the Turkish Cypriots. (ABK 276)

2.3. The predominance of passive matrices

The manually filtered matches of a query for the pattern claimed to produced 190 occurrences of infinitival complements with a passive matrix clause (e.g. (38)-(40)), whereas a query for CLAIM NP to (in which the NP is one to four words long) produced only 34 occurrences, viz. the 33 cases with to be mentioned and illustrated above, and (41).

(38) Ghost hunters are staging a vigil at what's claimed to be one of the most haunted houses in the country. (K1R 536)
Chapter 3

(39) Key Sun employees in the areas of programming and signal processing are said to be moving to the new company, which is claimed to have made breakthroughs in security and ease of use. (CND 7)

(40) This lamp, through its ability to reduce explosions, was claimed to produce a great improvement in the working conditions that the miners had to endure. (B77 637)

(41) Indeed, the music industry can reasonably claim its market to include anyone from 5 years to 50, taking in both sexes and every social class. (A6A 276)

2.4. Passive matrices with (dynamic) lexical infinitives

Of the 190 infinitives with passive matrices, 103 (or 54%) were either to be or to have, and 87 (or 46%) were lexical verbs, many of them dynamic ones (e.g. (42)-(44)). As mentioned in the previous section, there is only one example of a lexical verb following an active matrix, viz. (41) with the stative infinitive to include.

(42) Not all the latest water-saving reduced-flush toilet cisterns will flush the pan effectively, but the Ifö Aqua is claimed to do so. [...] The water-conserving Ifö Aqua already has a 6 litre flush, and is claimed to create enough swirl in the bowl to flush efficiently. (CCY 143/147)

(43) SharePlex/sX is claimed to use standard networking capabilities such as X25 to provide complete application-environment replication anywhere in the world, and it is supported on all HP 3000s, including the old 16-bit ones. (CNE 3)

(44) The Powermiser is claimed to cut the cost of water heating dramatically. (ECJ 24)

2.5. Passive matrices in translations

In the Canadian Hansard corpus I found 9 instances of claimed to be/have. Two of them were unmatched (viz. (45) and (46)). One of them was matched by a conditional (viz. (47)).

(45) a. Political violence and electoral fraud have been reported by no less an organization that the Inter-American Commission on Human Rights of the Organization of American States. It severely criticized the conduct of the election at which M. Salinas was claimed to be the victor after the whole process was stopped for a week so that they could rearrange the computer and the counting.

b. La violence pour des motifs politiques et les manoeuvres électorales frauduleuses ont été dénoncées par un organisme très important, la Commission interaméricaine des droits de l'homme de l'Organisation des États américains, qui a sévèrement critiqué la tenue des élections remportées par M. Salinas après qu'on ait arrêté toute la procédure pendant une semaine, le temps de falsifier les données informatiques et le dépouillement des votes.
Is claim a believe-type verb?

(46) a. As we know, it has been estimated that 7 out of 10 new jobs--in fact, I read somewhere where it was claimed to be 9 out of 10--that are created in the country are created by small business.

b. Comme vous le savez, on estime que sept nouveaux emplois sur dix sont créés par la petite entreprise et j’ai même lu quelque part que la proportion était de neuf sur dix.

(47) a. The note rejected Moscow’s responsibility for what happened, blaming instead the Lithuanian leaders who were claimed to have held extremist positions.

b. Moscou rejette toute responsabilité et blâme les dirigeants lituaniens qui auraient pris des positions extrémistes.

The active CLAIM NP to be pattern occurs 14 times in this corpus. However, none of these occurrences were either unmatched or matched by evidential expressions, but all had more or less congruent matches: prétendre (7 times), dire (3), soutenir (2), affirmer (1) and crier (1).

3. Conclusion

Claim is a believe-type verb in more ways than one. Not only does it display the same variation between that-clause complements and accusative and infinitive complements, the typical characteristics of these two kinds of complement in combination with claim are no different from their behaviour in combination with core members of the class. This lends further credence to the hypothesis that what has been described here is not so much lexis as the influence of discourse on syntax.

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Is there semantics in all syntax?
The case of accusative and infinitive constructions vs. *that*-clauses

The grammatical variation displayed by verbs of cognition (as well as verbs of perception) between *that*-clauses and accusative and infinitives poses a serious challenge to the currently fashionable view that there can be no difference in form without a difference in meaning. Though some have (either openly or implicitly) admitted that they can see no semantic difference between the two constructions, others refuse to concede this, but the proposals that have been suggested as to their different semantics can hardly be said to coincide. Nor are such proposals accompanied by evidence one would unhesitatingly dub “empirical”. This paper confronts the introspection-based suggestions by Wierzbicka (1988) and Verspoor (1990) with data from the British National Corpus and invalidates their distributional predictions. Langacker’s (1995) theory-driven proposal is argued to be supported by corpus data, at least in so far as it predicts the tendency of both constructions to be used in different discourse environments.

1. Semantic extremism

Syntax without semantics/No syntax without semantics: in the course of half a century the pendulum of modern linguistics has completed its swing. After a few decades of syntax with as little meaning as possible in the third quarter of the 20th century, it has since become fashionable to adhere to the creed that literally everything in syntax is meaningful and that the linguist’s task is to elucidate the meaning of form within a — so-called “functional”, as opposed to “formal” — theoretical model that coherently links up syntax and semantics. Models like Cognitive Grammar, created by Ronald Langacker, and Construction Grammar, spearheaded by Paul Kay and Charles Fillmore, have acquired a fair amount of respectability — an objective measure perhaps being that they were both recently allowed centre stage in *Language* (Langacker 1995; Kay and Fillmore 1999) — and both models are amassing a growing flock of followers. Of course, the core idea behind them — that all form signals meaning, that every grammatical choice has a

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meaning behind it, that there is no syntax without semantics — is not so new: Anna Wierzbicka, one of the most outspoken defenders of the doctrine, points back to a quote from Dwight Bolinger dating from 1968: “a difference in syntactic form always spells a difference in meaning” (Bolinger 1968: 127, cited in Wierzbicka 1988: 25). The idea can also be said to be one of the tenets of Michael Halliday’s Systemic Grammar, which started life in the 1950’s (publication-wise with Halliday 1956) and which fairly recently was rechristened Systemic Functional Grammar to make clear to the likes of members of Simon Dik’s Functional Grammar school (see, e.g. Dik 1978), and the so-called West Coast functionalists, that they have no claim to the term “functional”, and that systemicists were functional long before functionalism became accepted. But Bolinger’s had always been a fairly lonely and “excentric” voice in the proverbial dark, whereas his (what I would call) “semantic extremism” is now no longer very special. The systemic school, too, has always been an isolated community, and perhaps continues to be so in spite of the changed climate, because the “secret language” they have developed over thirty-odd years hampers the exchange of ideas with a now very much like-minded mainstream.

This currently fashionable semantic extremism is, of course, a doctrine (I have used the word above)² no less than the formal extremism it replaces: it is a principle that is presented for acceptance or belief. You embrace it because you feel disposed towards it, not because you are convinced by the “facts” adduced in support of it, for one’s recognition of these facts presupposes an inclination to do so: facts rarely speak for themselves. Besides, the body of facts that is advanced is usually not very sizeable. A near-synonym of doctrine is dogma, and semantic extremism can be said to be “dogmatic” in at least one dictionary definition of the word, viz. “based on assumption rather than empirical observation” (though another definition might also apply: “forcibly asserted as if authoritative or unchallengeable”).³ Of course, the question of what constitutes an empirical fact in linguistics is as much a matter of doctrine as anything else, but it seems to be a point on which semantic extremists do not differ much from formal extremists: usually only very few data are adduced as evidence (the evidence is more of an argumentative nature), and most of the data consist of very short invented sentences rather than naturally-occurring discourse, a practice that apparently continues to be unproblematical in hardcore theoretical linguistics of whichever persuasion.

Facts rarely speak for themselves, and it goes without saying that there is at least implicit doctrine, or “theory”, in all observation. Explicit theory can help to reveal facts that would otherwise go unnoticed, but there is also the danger that the theory starts to live a life of its own and that it produces facts that are much more a matter of imagination than observation. Unquestionably, there is meaning in some grammar, but does it follow that there is meaning in all grammar? For instance, Kay and Fillmore (1999) make a good case (i.e. one that is intuitively appealing) that What’s X doing Y? is a construction that carries a certain meaning independent of the lexemes that fill it. But they admit themselves that it is an idiomatic construction and

² I did so following Trask (1993: 24), who defines autonomy of syntax as a doctrine.  
³ These definitions were taken from the Collins English Dictionary.
that not everything in grammar (defined as a collection of constructions with a
specifiable meaning) is equally idiomatic, so no matter how convincing their case is
for idiomatic constructions, it does not prove much for grammar as a whole.
Likewise, I have argued elsewhere (in Noël 2001) that the unbracketed part of (X) is
BELIEVED to (be/do Y) — in which BELIEVED stands for any believe-type verb —
has an evidential meaning, but it does not follow from this that, say, the
construction’s active counterpart (Z) BELIEVES X to (be Y) also carries a specifiable
meaning. A few relatively frequent instances of the passive pattern (be said to, be
thought to, be considered to, be found to, be believed to, can be said to be undergoing
a process of grammaticalization which is turning them into auxiliary-like evidentials,
and this evidential meaning of the most frequent instances of the pattern clearly “rubs
off” on less frequent instances (be alleged to, be judged to, be understood to, be felt
to, be reported to, ...), but is this process necessarily paralleled by anything
happening to (instances of) the active pattern?

What I aim to do in this paper is to further characterize, and to take issue with, this
now popular semantic extremism by concentrating on a small part of a much larger
field about which one semantic extremist has said that “anybody wishing to seriously
advance the view that syntax has semantic foundations simply must meet [its] chal-
lenge”, viz. the field of English complementation (Wierzbicka 1988: 23). The subdo-
main I will focus on is the variation displayed by verbs of the type of believe
between infinitival and finite complements. I will review the proposals of three
semantic extremists on this, viz. Wierzbicka (1988), Verspoor (1990) and Langacker
(1995), and confront these model-inspired suggestions with my own data-driven

2. Wierzbicka (1988)

In her book The Semantics of Grammar, Anna Wierzbicka articulates her uncompro-
ming credo in the following terms:

Grammar is not semantically arbitrary. On the contrary, grammatical dis-
tinctions are motivated (in the synchronic sense) by semantic
distinctions; every grammatical construction is a vehicle of a certain
semantic structure; and this is its raison d’être, and the criterion
determining its range of use. (Wierzbicka 1988: 3)

More specifically with relation to the area of English complementation she wants to
“explore the hypothesis [i.e. convince the reader of the truth of the proposition] that
ALL contrasts between TO, ING and THAT can be accounted for in terms of mean-
ing; and, moreover, that they can be accounted for in terms of rigorous and
intuitively verifiable semantic representations” (Wierzbicka 1988: 26). In a veritable
tour de force she explains away the “apparent arbitrariness” of the range of uses of

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4 Another inductively based warning against too optimistic a view on the relation between
complementation patterns and meaning is contained in Hunston and Francis (2000).
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the different complement types with a few “hypothetical general rules”. She discusses the TO or infinitival complement under three headings: a) TO and wanting, b) TO and opinion, and c) TO and emotion. THAT or the finite complement only needs one section: THAT and knowledge. Here is an example of each, together with their “rigorous and intuitively verifiable semantic representations”:

(1)  
* X didn’t think to lock the door.  
⇒ 
  X didn’t think this: I want this: I will lock the door  
  because of this, X didn’t do it (Wierzbicka 1988: 30)

(2)  
* I believe Mary to be dishonest.  
⇒ 
  I believe this of Mary: she is dishonest  
  I don’t want to say: people say this  
  I don’t want to say: I know this  
  I say: I believe this (Wierzbicka 1988: 49)

(3)  
* I blush to think that I suspected this saintly woman of being a thief.  
⇒ 
  when I think this: I know this: I suspected this saintly woman of being a thief  
  I feel something (and I blush because of it) (Wierzbicka 1988: 100)

(4)  
* He said that Mary was sick.  
⇒ 
  he said this: one can know this: Mary is sick (Wierzbicka 1988: 134)

In (1) the infinitive first and foremost implies “wanting”, in (2) “subjectivity”, “private knowledge”, an “epistemological opinion”, and in (3) the emotional reaction to an awareness of a personal experience. The that-clause, on the other hand, implies “objectivity”, “public knowledge”, a “knowable truth”. In other words, whereas the finite complement has only a single meaning, the infinitival complement seems to be polysemous, with at least three meanings. However, perhaps because this allows for the suggestion that these meanings are not so much attributable to the choice of complement as to the complemented verb, it is suggested that the three kinds of infinitival complement share a core meaning, or a “semantic invariant”: they are always associated with a) a personal, subjective, first-person mode (“I want”, “I think”, or “I know”), and b) some sort of future component (Wierzbicka 1988: 166). For instance, to illustrate the latter of these two, the disclaimer in (2), *I don’t want to say: people say this*, can be spelled out more precisely as *I don’t want this: I will say this: people say this* (because wanting is always future-oriented).

However, Wierzbicka’s “rigorous and intuitively verifiable semantic representations” do not allow us to pinpoint the supposed semantic difference between pairs like *I believe Mary to be dishonest* and *I believe that she is dishonest*. Compare (2) with (5):

(5)  
* I believe that she is dishonest.  
⇒ 
  I think this: she is dishonest  
  I don’t want to say: I know this  
  I say: I believe this (cf. Wierzbicka 1988: 54, 136)

Leaving aside the of-phrase in (2), *of Mary*, which is absent in (5) but whose significance is not made clear, and the extra line in (2), *I don’t want to say: people say this*, which is there to contrast (2) with *Mary is believed to be dishonest*, the semantic
representations of both sentences are practically identical, which might lead one to conclude that they are synonymous and that consequently there is no semantic difference between infinitival and finite complements. However, such a conclusion would be at odds with her explicit statement that

TO complements are compatible with the element ‘know’, but only in the subjective first person mode of ‘I know’ […]; by contrast, THAT complements introduce an ‘objective’, impersonal, ‘one can know’ perspective. (Wierzbicka 1988: 165)

It is strange that this purported semantic difference is not apparent from the “rigorous and intuitively verifiable semantic representations” for sentences like (2) and (5), but the intended reading of the shared semantic representation seems to be that it explains why both the infinitive and the that-clause are possible: the that-clause because there is reference to knowledge, the infinitive because this knowledge is of a personal kind (“I know this” rather than “one can know this”; cf. (4), which does not have an (active) infinitival counterpart).

Since they are person-made and a posteriori, rather than god-given and a priori, these representations do not in fact explain a great deal. Moreover, it is not enough to call one’s semantic representations “rigorous” and “intuitively verifiable” — both contestable epithets anyway — for them to constitute empirical evidence, though Wierzbicka does not shy away from qualifying her work as “empirical” and “non-impressionistic” (see, e.g. Wierzbicka 1988: 20, 168). As suggested above, the nature of what constitutes empirical evidence in linguistics is all part of the particular doctrine one adheres to, but as far as the present author is concerned (one kind of) truly empirical evidence is based on usage: if there is a difference in meaning between infinitival and finite complements, then this should be obvious from their occurrence in natural discourse in combination with verbs that allow both kinds. In all fairness, Wierzbicka does make predictions on this, though regretfully sheformulates them as statements of facts rather than hypotheses without checking them

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5 I base my assumption that this is indeed the intended reading of the shared semantic representation on her account of why a volitional verb like hope can — unlike want, she says — take a that-clause:

If some of the semantic relatives of want — e.g. hope and wish — can nonetheless take THAT complements, it is because they contain additional semantic components, which, so to speak, give THAT a foothold in the sentence. For example (roughly):

I hope that she comes. ⇒
I want this: she will come
I don’t say this: ‘one can know this: she will come’
I don’t know this

Hope, unlike want, implies ‘not knowing’; and ‘not knowing’, just like ‘knowing’, can combine with THAT. (Wierzbicka 1988: 164)
against the data. As such they remain wild shots in the dark, which unfortunately are often way off the mark. I will give two examples of this.

The first is her observation that since infinitival complements, when they express knowledge, express “personal, experiential knowledge” rather than “public knowledge”, sentences like *I know Mary to be a Mormon* are perfectly alright because of the first-person subject, but sentences such as *John knows Mary to be a Mormon* (her question mark) are much less natural, “because if I say “John knows p” then I, too, know that p, so John’s knowledge is no longer purely personal knowledge”. It is therefore more natural to say *John knows that Mary is a Mormon* (Wierzbicka 1988: 51). What Wierzbicka’s empiricism boils down to is that readers can now check this against their intuitions and either agree or disagree (though the latter may not even be an option, judging from the positiveness of her assertion). If we are agreed, however, that the naturalness of a particular type of sentence is correlated with its frequency of occurrence, then it should not be too difficult to test her claim against a corpus of naturally-occurring discourse. This is what I did by searching the British National Corpus (BNC) for occurrences of *KNOW (X) to be* and splitting them up according to person. It turned out that only 20% of the query matches had a first-person singular subject, whereas 58% had a third-person subject. (A query for (present-tense forms of) *KNOW that* produced roughly the same results: 19% had first-person singular subjects and 53% had third-person subjects.) Here is a small selection of examples with infinitives:

(6) Because women know men to be vulnerable and fragile, they are often tempted to excuse them as ‘just little boys’ who need to over-compensate for their sense of inadequacy or ‘womb-envy’ with acts of spiteful misogyny. (HH3 15192)

(7) She knows Victor to be a troublemaker, and even remembers the boy’s father’s remarks at the last parents’ evening, encouraging her to give Victor a ‘good smack if he causes any trouble’. (AN5 1392)

(8) Those who followed his career in television, from the role of humble assistant film editor, up through the features department of Granada Television, through to his incredibly successful period as editor of the BBC magazine programme, Holiday ’76, knew him to be resourceful, keen, and deeply aware, not only of the problems of travel — his chosen speciality — but also of such things as cuisine and interior design.’ (ASS 2941)

Readers of this paper are free to dispute the naturalness of these sentences but should be aware that similar sentences constitute the majority of cases. Readers may of course also agree with me (or not) that in these three examples the knowledge expressed in (6) and (8) is of a more public nature than that referred to in (7), casting doubt on the assumption that the distinction between private and public knowledge

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6 Unless specified otherwise, all examples are taken from the 100-million-word British National Corpus (BNC) (for a description of the corpus, see Aston and Burnard 1998). In the source code that follows each example the three positions before the space identify the excerpt it was extracted from (which can be looked up in Burnard 1995); the number following the space is the line number of the example within the excerpt.
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can be related to the choice of a subject for know (or indeed the choice of an infinitive), but even if we decide to go along with her on this, usage data simply do not bear out the prediction based on this assumption that a third-person subject is unnatural in combination with know and an infinitive. What is worse, this then refutes her hypothesis that the infinitival complement is associated with private knowledge.

A second example of such unsubstantiated predictions goes back to an observation by Borkin (1973: 45–46) that sentences like I found Harry to be terribly amusing and He found her to be intelligent imply personal and experiential knowledge and that one can hardly say *I bet that if you look in the files, you’ll find her to be Mexican (Borkin and Wierzbicka’s asterisk), though there is nothing wrong with I bet that if you look in the files, you’ll find that she is Mexican (Wierzbicka 1988: 50, 136). Whether one is amusing or intelligent can be a matter of dispute, someone’s nationality normally is not, and indisputable knowledge is not compatible with the infinitival complement. At least, so goes Borkin’s and Wierzbicka’s story. When we turn to the BNC again, however, and (admittedly) intuitively divide the matches of a query for FIND X to be between those referring to knowledge that is a matter of opinion and those referring to objective knowledge, we almost end up with a fifty-fifty split: 54% are like finding someone to be amusing or intelligent, 46% are like the starred sentence. Here are a few real examples of infinitives referring to knowledge that can hardly be said to be subjective:

(9) The UK Consumer’s Association has called for the establishment of an EC minimum requirement for minerals in "mineral water", after a study of 29 popular brands found most to be virtually devoid of minerals. (J2V 86)

(10) A person found his hands to be contaminated on leaving a reprocessing plant, and he had to have the contamination removed. (HAX 49)

(11) AB still appears shorter than BC even after I have measured them and found them to be equal. (CK1 299)

FIND that introduces an observed fact much more readily than it does a personal opinion (in at least three out of every four cases), but the latter is far from impossible:

(12) While I fully accept that the poor have become a cause by which many politicians and intellectuals can further their personal ambitions, I do nevertheless find that the Hayekian case is deficient. (CDW 337)

(13) Milano is the variety that I regard as the standard among the enormous range of Italian salami. It is minced fairly finely with a high proportion of fat to meat and has a good spicy flavour which is not too hot, although peppercorns and other spices are often included. Napoli is also a very popular variety, having coarser lumps of fat than the Milano and being made with a mixture of pork and beef. I find that Napoli is slightly chewy but delicious. (ABB 90)

(14) Mr Chambers’ marketing efforts have been direct, including cold calling, but a large amount of his work now comes by referral. He finds that job ads placed in prominent papers like the Financial Times serve him well. He still
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*thinks it was a good idea to open his business, despite the recession.* (CBX 1410)

There are clear indications, therefore, that Wierzbicka’s hypothesized general rule about the difference in meaning between infinitival and finite complements is not borne out by the facts, if with facts we mean corpus data, rather than one or two people’s intuitions about a few sentences.

3. Verspoor (1990)

While Wierzbicka (1988) is ostentatiously intent on proving that complements carry meaning, Verspoor (1990) has no such explicit intention, but rather takes for granted that “syntactic form is indicative of its semantic function” (Verspoor 1990: 49). Both scholars obviously share the assumption that for certain verbs to take certain types of complement the meaning of the verb and the meaning associated with the complement type must be compatible. Verspoor (1990) characterizes the meaning of the complement type in terms of the presence or absence of a causal relationship between what is expressed by the matrix verb and what is expressed by the complement. Starting from a verb like *announce*, which she assumes only to take a finite clausal complement, and a verb like *compel*, which she assumes only to take an infinitive, her claim is that “finite clauses occur when there are no direct causally relevant relationships between the Intentional state/act expressed by the matrix verb and the action, event, or state of affairs expressed by the complement” (Verspoor 1990: 27) and that “a non-finite structure is possible only when there is a causally relevant relationship between the action or state expressed by the matrix verb and state of affairs, event, or action expressed by the complement clause” (Verspoor 1990: 47). In other words:

When one announces a state of affairs, the state of affairs does not bring about the announcing, nor does the announcing bring about the state of affairs; therefore, there are no relevant causal relationships between the action/state expressed by the matrix verb and action/state of affairs/event expressed in the complement. On the other hand, when one compels someone to do something, the compelling brings about the action.

(Verspoor 1990: 28)

As it happens, however, *announce* does not in actual fact occur exclusively with a finite clause, as the following examples from the BNC testify:

(15) *After only three weeks Richter announced his experiment to be a success.*

(CER 513)

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7 The central claims of Verspoor (1990) are repeated (with equal conviction) in the perhaps more readily available Verspoor (1993) and (1996).
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(16) The explosion was in fact caused by members of the Guandong Army, but the Japanese announced it to be the work of non-uniformed members of the Chinese army. \(\text{\text{EE2 877}}\)

(17) Even if a large cash shortage in the money market is anticipated for the following week, as is usually so, Treasury bills will still be announced to be on offer for that week in order to ensure the preservation of a market in the bills. \(\text{\text{K8W}}\)

So either Verspoor’s (1990: 28) characterization of the relation between an announcement and what is announced is wrong and the complements in these examples do express something that is somehow causally related to its announcement, unlike when announce is followed by a that-clause, or the characterization in terms of a causal relationship is correct but such a causal relation is not relevant to the choice between the two types of complement. Though the second of these two options would be most in line with my own argumentation in this paper, I am quite willing to grant that here might well be a measure of truth in the first, for it is not impossible (but is it necessary?) to construct an interpretation for examples (15)–(17) in which an announcement creates a state of affairs, instead of simply making it known. To announce something to be X would then be semantically related to to cause something to be X (and to to pronounce something to be X). It does not follow, however, that the same is true of to believe something to be X. For a start, the causal relation is suggested to work in the other direction. This is what Verspoor (1990) has to say about verbs that are generally known to select both infinitives and that-clauses:

When a matrix verb such as believe selects a non-finite complement, the ‘belief’ is based on some evidence that causes the belief and believe is more or less synonymous to consider; the finite structure, on the other hand, may occur when there is no concrete evidence to cause the belief and believe is more or less synonymous to speculate. \(\text{\text{Verspoor 1990: 91}}\)

Or in slightly different terms:

[...] the choice between a finite indicative or subjunctive complement clause versus a non-finite complement clause in English may also depend on the degree of certainty or commitment that the subject or speaker has towards a proposition. \([\text{I believe him to be honest}]\) is used when there is some direct evidence for the belief, and therefore expresses a stronger degree of commitment to the truth of the proposition expressed in the complement \([\text{than I believe that he is honest}]\). \(\text{\text{Verspoor 1990: 43}}\)

It is rather unfortunate that when we try to relate this to Wierzbicka’s (1988) notions of “personal” versus “objective knowledge”, we seem to end up with a correspondence that is exactly the opposite: for Verspoor (1990) it seems to be the infinitival
complement which is more objectively grounded.\(^8\)\(^9\) Verspoor (1990: 91) tries to convince her readers of this by contrasting invented sentence pairs like Although I have no facts to work with, I believe that such a trip is too expensive for us / ?Although I have no facts to work with, I believe such a trip to be too expensive for us and Although I have met only John and not Peter, I believe that John is taller than Peter / ?Although I haven’t ever met either and I don’t know anything about them, I believe John to be taller than Peter, but though these readers may accept what is being suggested to them and agree that there is a difference in acceptability between the members of each pair, such agreement hardly constitutes empirical evidence. Controlled experiments eliciting acceptability judgements in a non-suggestive way could count as such, but will these be feasible? Nor can corpus data be relied on in this case, for it is difficult to conceive how Verspoor’s (1990: 91) distinction between well-founded and unfounded beliefs can be translated into observational criteria that could be tested against a corpus. Apparent counterexamples to her contention that believe plus an infinitive expresses a belief based on evidence, like (18)–(20), can only be argued to be so using the same impressionistic approach which lies at the root of the problem with theory-driven accounts like Wierzbicka’s (1988) and Verspoor’s (1990): one can only appeal to one’s readers intuitions, and their benevolence or gullibility.

(18) *Marx described the consciousness of people in a situation of class conflict as ideological*, meaning that although they might represent and believe their

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\(^8\) In a very recent paper, on the other hand, Verspoor (2000) seems not to be able to decide between her own original position and Wierzbicka’s. Discussing the sentence *He found the chair to be comfortable*, she writes: “the *to* infinitive may imply that there is some directly experienced evidence upon which the claim for the truth of the event or state of affairs expressed in the complement is based, but it may also imply that the subject tentatively places an item in a category” (Verspoor 2000: 220). There is no attempt to reconcile these seemingly opposite meanings.

\(^9\) Verspoor (1990) was not the first to formulate the contrast between *that*-clauses and accusative and infinitive complements in terms of the speaker’s evidence for what is asserted. Alice Davison did so before her, but she claimed the finite complement to be ambiguous between two readings and the non-finite complement to be more restricted:

The raised structure conveys first-hand knowledge of some sort, while the unraised structure conveys both that reading and a more neutral one — the simple proposition, with no evidential modality. […] So the opposition of the two structures is not actually one where a difference of syntax changes meaning; rather, it restricts the range of meanings available in one member of the opposition. (Davison 1984: 817)

Davison’s claims about different meanings remain unsubstantiated, however, unless the provision of two (invented and isolated) examples where the said contrast is purported to hold counts as such (but there is no room here to confront these with real examples). What is more, Davison’s main claim about the difference between the two structures is a very different one (see note 12) and if there is a link between both claims it is far from clear and not made explicit.
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ideas to be objective and of universal validity, in reality these ideas express and serve class interests. (FBC 729)

(19) In our view, although the Code extends beyond the treatment of those in detention, what is clear is that it was intended to protect suspects who are vulnerable to abuse or pressure from police officers or who may believe themselves to be so. (FCC 277)

(20) Although difficult to date he believes the trackway to have been in existence for at least 2,000 years and may well pre-date Roman times. (BM4 1793)

In the absence of distributional evidence, however, uncooperative, ungullible readers would be justified in considering the purported semantic difference between finite and non-finite complements unproven, especially because the claim of a different semantics appears to be based on a mistaken assumption of their true distribution. For instance, it is not only announce which does take an infinitive counter to Verspoor’s (1990: 27–28) contention. She also claims “verbs reporting a deduction” like calculate, conclude, demonstrate, establish, infer, reason and surmise to be incompatible with the infinitive (Verspoor 1990: 89), but is equally mistaken about this. About calculate she says the following:

As is the case after the verb announce, the complement clause after calculate merely reports information without indicating the reporter’s attitude or opinion. The reporter does not imply that he is sure or unsure about the fact. The complement reports an assertion based on facts, circumstantial evidence, and reasoning. (Verspoor 1990: 90)

She stars the sentence *Based on these facts, I calculated the trip to be costly. Corpus data reveal, however, that this is unwarranted:

(21) A recent study of mortality among 248,000 US veterans of whom 723 died of leukaemia during 16 years of follow-up shows a significant increase in the risk of leukaemia associated with cigarette smoking, together with a dose response relationship between risk and the amount smoked. The risk was calculated to be 1.53 for current smokers and 1.39 for ex-cigarette smokers. (EBY 492)

(22) As I learned more of missionary work all over the world, I began to realise that there had to be a tremendous effort to help undernourished people to grow their own food for themselves, a task which is still tragically unfinished, and will remain so until the nations of the world, rich and poor, combine together to sacrifice a meagre percentage of their gross national product, which experts calculate to be necessary to abolish hunger in a generation. (CDC 298)

(23) Foreign Minister Carlos Iturralde Ballivián stated on Feb. 14 that the coca replacement programme would cost $3,500 million over eight years, while the US embassy in La Paz had reportedly calculated the figure to be $1,000 million over five years. (HKU 2276)

Similarly, the BNC produced examples with infinitives for the other deduction verbs mentioned, with the exception of reason:
In April 1943 Nazi German forces occupying the Smolensk area had disinterred what wartime and post-war international investigators concluded to be the remains of former Kozelsk camp inmates, who apparently in early 1940 had been taken to Katyn forest and shot. (HKT 1102)

For there are those who determine their own shape, their own direction, and the mere existence of them demonstrates Kao Tzu's claim to be a misrepresentation. (GUG 2463)

A cursory count established the initial death toll to be about seventy. (HTY 2525)

Radar can provide a more direct determination of axial period if there is a feature in the echo that can be inferred to have come from a surface feature on the planet, such as a mountain or a region with a particular composition or texture. (GW6 84)

"WHO ARE you looking for?" enquired a soul boy behind a typewriter (who I later surmised to be Paolo Hewitt, author of Beat Concerto). (CHA 3677)

This leaves us with three possibilities: a) the characterization of the causal relation between what is expressed by matrix clauses containing these verbs and what is expressed by their complements is mistaken, and these verbs are semantically like believe, but there do exist verbs that only take that-clauses and no infinitives, which can then be explained by the necessary absence of a causal relation — but then, which are these verbs? —; b) perhaps there are no verbs that only take finite complements and no infinitives, but the above deduction verbs can still be characterized semantically along the lines of believe, the choice of complement being determined by the presence or absence of a causal relation/commitment — however, no convincing, truly empirically verifiable, evidence has been adduced for this —; or c) the choice between the two complements has nothing to do with the presence or absence of a causal relation/commitment. In the absence of cogent evidence to the contrary the present author remains convinced that the latter is indeed the case.

Note that so far in this section reference has been to infinitives in general, not to the narrower category of accusative and (to-)infinitive complements. There are, of course, verbs that take that-clauses and infinitives, but not (normally) NP + to-infinitive patterns, e.g. hope, agree, arrange, pray and regret (though some of these allow the accusative and infinitive when the subject of the infinitive is relativized, as in I am embarking on a number of projects which I hope to be of interest to fellow treasure hunters (G30 834)). But the distribution of the smaller category, as we have established, is wider than assumed by the author currently under review. Moving from cognition to perception verbs, however, it becomes clearer still how theory can blind one for certain facts. Verspoor (1990: 85) claims that verbs of perception are only compatible with a bare infinitive, not with a to-infinitive, this being the syntactic reflection of the semantic fact that in the case of perception the causal relation between the perceiving and what is perceived is more immediate (i.e. the perceiving and the percept occur simultaneously) than between believing and what is believed, but once more the data contradict her. The following examples suggest that immediate perception can just as well be expressed with a to-infinitive, again
seriously questioning if not the presumption of the semantic import of complement choice, then at least its characterization in these terms.

(29) Other boys and girls were flitting hither and thither among the trees, singly, without a word or a sign of communication with one another. A few were older, many were younger, than I. Some like myself were looking about them. Others had found what they sought. These, when I passed them, I saw to be sitting or kneeling beside cradles, rocking them, or singing, or gazing intently. (ABL 733)

(30) My fingers ache and I feel my face to be beetroot-red. (G02 46)

(31) But for /æ/, the short variant can be a low vowel ([a, ae]) and the long variant is a mid vowel that is easily heard to be qualitatively distinct. (FAD 269)

(32) Allow the patient to speak of what they notice to be wrong with themselves and try not to put words into the patient’s mouth. (B1R 262)

(33) Suppose, for example, that up until today I have observed a large number of ravens under a wide variety of circumstances and have observed all of them to have been black and that, on that basis, I conclude, “All ravens are black”. (FBE 233)

(34) As soon as he left the car he sensed the air to be damper and colder than in London, musty with the scent of the distant North Sea, whose breakers were grinding the beach a few miles away at Felixstowe. (GUP 1193)

The possibility of a to-infinitive after perception verbs was long recognized before Verspoor (1990: 83) denied it, e.g. by Jespersen (1940), van Ek (1966), Visser (1973), Bolinger (1974), Palmer ([1974] 1988) and Declerck (1983), but it is agreed, also by Duffley (1992), that the to-infinitival complement turns these verbs into believe-type verbs — in Bolinger’s (1974) terms they become “conceptual” rather than “perceptual” verbs. Since a concept, unlike a percept, is said not to be concurrent with perception but to ensue from it, this would support Verspoor’s (1990: 85) suggestion that the difference between a bare and a to-infinitive is attributable to the immediate/non-immediate causation parameter, if only such an analysis did not appear to be extremely far-fetched for quite a few of the above examples. More interesting, though, if one is interested in the choice between infinitives and that-clauses, is that both Palmer (1988: 189) and Duffley (1992: 32–39) consider paraphrasability by a that-clause to be indicative of the conceptual, rather than perceptual, nature of the complement, perhaps suggesting their synonymy. Duffley (1992: 32) calls that-clauses and to-infinitival complements “close equivalents”. Declerck (1983: 37), as well, says that “[a]s far as [he] can see there is no semantic difference whatever” between the two kinds of complement. As corpus data reveal, however, that-clauses seem not to be incompatible with an immediate perception reading.10

10 Another definition of the difference between immediate (or direct) and non-immediate (or indirect or reported) perception against which these examples can be “tested” is supplied by Declerck (1983: 36):

By direct perception we mean that the contents of the PVC [perception verb complement] represent the interpretation which the perceiver assigns
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(35) I ran down to meet him, but when I got there I saw that he had narrow eyes and a mean mouth and I didn’t like him one bit. (A0D 1866)

(36) I heard a great commotion in the hallway. Quickly I fastened my veil around my face. My feet moved my body forward without thought or intention. The doomed one was fragile and childlike between the tall stoic guards who led her to her fate. Her chin rested on her chest, so it was difficult to see the expression on her face. But I discerned that she was a pretty child, one who would have grown into a beauty had she been allowed the opportunity to age. (CJP 514)

(37) The Coke was cold and Harry drank it gratefully, even though he could feel that it brought him out in an instant sweat. (ECU 2506)

(38) As they approached, they could hear that he was whistling merrily as he walked and, upon seeing them, he raised a hand and gave them a frank open smile. (C98 557)

(39) When the meal is over we notice that the sky is clearing; now there is enough cloud-free sky to show that the Northern Lights are out. (A6T 2376)

(40) Water is the only substance which can easily be seen passing into vapour when heated and becoming solid when cooled. When water turns to steam, it expands; when chilled into ice, it ought to contract into a smaller volume. But does it contract? If Anaximenes had put a jar of water outside his door on a frosty night, he might have observed that the water did not shrink when it turned into ice, but, on the contrary, split the jar. (BM8 1220)

(41) The rhythm of a language is hard to describe or define, but we react to it subconsciously. Imagine yourself being in a crowd where English is being spoken, but suddenly you sense that somebody is talking in another language. It isn’t the actual words you react to, but the different rhythm. (H0J 701)

Verspoor’s (1990: 84) assertion of the semantic significance of complement choice after perception verbs, though not strictly speaking excluding examples such as these, does not explicitly recognize their possible occurrence or semantic well-formedness either:

with verbs of perception, the non-finite structure may occur only when the event expressed in the complement directly causes the perception. A that clause, but not a non-finite structure, is possible when the matrix verb does not express a ‘sense’ perception, but a conclusion based on ‘circumstantial’ evidence. Because of the condensation on the mirror, I see that Michael is taking a bath / *Because of the condensation on the mirror, I see Michael taking a bath.

immediately and largely unconsciously to the situation perceived. Indirect perception, on the other hand, means that the PVC reports a conclusion that is more consciously arrived at by the perceiver (or someone else) on the basis of perception.

There is no space here, however, to refute Declerck’s so-called “syntactic and semantic evidence” that to-infinitives after perception verbs necessarily express indirect perception.
What is more, sentences such as *Because of the condensation on the mirror, I saw Michael to be taking a bath/Michael was seen to be taking a bath* should not be ruled out a priori. Consider these real examples, which do not report immediate perception as characterized above, but a conclusion based on evidence:

(42) *No-one should underestimate the enormous gain in freedom for millions who had been trapped in the oppression of communist dictatorships, but the speed with which the liberation of eastern Europe occurred was so stunning that it raised what we can now see to have been unrealistic expectations of the transition to peace, democracy, and prosperity.* (K5C 2420)

(43) *Harris (1984) shows that even two varieties which are held by their own speech communities to be related dialects may actually have very different underlying grammatical systems: "deep-seated structural divergences [may] exist between varieties which are intuitively felt to be dialects of the same language"* (Harris 1984: 304). (HXY 655)

(44) *A Scottish Office spokesman said: “Justice must not only be seen to be done — but heard to be done.”* (CH6 3863)

(45) *If you step out of line, as I did a couple of times, trying too hard to find out how much money he earns, then he will pull you back and forget it, but you feel that if you were to commit a serious breach then he would not forgive. You sense his personal ethics to be very close to the surface.* (FBL 1393)

It appears, therefore, that Verspoor’s (1990) semantic explications of complement selection are built on an incomplete picture of the distribution of these complements. Not only *believe*-type verbs but also perception verbs allow accusative and *to*-infinitive complements in addition to *that*-clauses. Moreover, contrary to what others have claimed in connection with perception verbs, these complements do not necessarily engender a semantic shift from the perceptual to the conceptual. A characterization of the meaning of complement types in terms of different kinds of causation seems therefore to have no empirical foundation: if *to*-infinitives can express both immediate and non-immediate causation, and *that*-clauses both immediate causation and absence of causation, then this casts serious doubt on the relevance of such a parameter for complement selection.


What Ronald Langacker’s Cognitive Grammar shares with the previous authors is that it asserts “the symbolic nature of grammar” and “hence the meaningfulness of all grammatical elements” (Langacker 1995: 5), but whereas Wierzbicka (1988) and Verspoor (1990) situate the assumed semantic contrast between finite and accusative and infinitive complements in the area of epistemic modality, Langacker (1995) chooses a completely different tack, accounting for the difference in terms of the same theoretical apparatus with which he describes the difference in meaning between sentences like *I washed the car* and *I washed the mud off the car*, i.e. in terms of the profile the expressions impose on a certain conceptual content. In essence, the contrast between sentences like *I expect that Don will leave* and *I expect
Chapter 4

Don to leave is that the former sentence gives focal prominence to an entire process (Don’s leaving), whereas the latter focuses on a participant in that process (Langacker 1995: 33–35). This participant functions as a “reference point”, which “can be thought of as a kind of local topic, i.e. a topic for purposes of ascertaining the actual (or direct) participant in the profiled main-clause relationship [i.e. the process of Don’s leaving]” (Langacker 1995: 38). Basically, therefore, for Langacker (1995) the “slight” difference in meaning between such sentences seems to be a matter of information status and information structuring. If this is meaning, however, it is an entirely different kind of meaning than what Wierzbicka (1988) and Verspoor (1990) refer to. In Halliday’s terms, theirs can be said to be of an “interpersonal” nature, while that of Langacker (1995) is “textual” (for definitions, see e.g. Halliday [1985] 1994). Their meanings are part of the conceptual content of expressions, whereas his are not. In other words, in linguistics the terms “meaning” and “semantics” can cover quite dissimilar phenomena, and one might raise the question whether it is not more confusing than helpful to use exactly the same terminology to talk about the choice between a that-clause and an infinitive and, say, the difference between the prepositions before and after, as do cognitive grammarians. If Langacker’s (1995) characterization turns out to be basically correct, the choice between finite and infinitival complements can therefore only be said to be semantically motivated if semantics is allowed to cover a very mixed bag of phenomena. I will return to this below, but first it will have to be established whether there is any truth in the Langacker (1995) proposal.

Langacker’s (1995) suggestion is theory-driven, not observation-based: in I expect that Don will leave the that-clause is the object of expect and in I expect Don to leave it is just Don which is the object, and since he defines an object as instantiating the entity accorded secondary focal prominence in the process profiled at the clause level of organization (the subject having primary focal prominence) (Langacker 1995: 20, 24), it naturally follows that in the first sentence the entire process is focused upon and in the second only the participant involved in it. He does, however, hint at an ob-

11 Another factor contributing to the “semantic non-equivalence” of such sentences, says Langacker (1995: 36), is “the meanings of the grammatical elements they contain”, i.e. the use of that vs. to, but Langacker (1995: 37) says very little on this other than that to “imposes a holistic (atemporal) construal on the envisaged event” and that that-clauses “construe the base process as an abstract thing (by conceptual reification)”, but this is really too abstract to be helpful. As Langacker says himself, “[s]uch refinements do not affect the basic points of [h]is paper” (Langacker 1995: 37, n. 25). Other cognitive linguists seem not to be able to make up their minds about whether the infinitival particle carries meaning or not. Cuyckens and Verspoor (1998: 68–69), for instance, say in the same breath that it is “hard to see what the meaning of the particle to is in sentences such as I like to swim and She is the first girl to have climbed the Everest”, and that “infinitival to is little more than a mere marker of the infinitive” in It ceased to rain and It was nice to see you again, but that in I believe Oliver to have eaten a sandwich the particle still has meaning, though it is “reduced to signalling indirectness”. They cannot, of course, get round this last statement without disavowing Verspoor (1990). There are others, however, who are not in favour of a complete desemanticization of to. Fischer (1997: 268), for instance, is of the opinion “that there is no grammaticalization process in English whereby the to-infinitive became a ‘mere’ infinitive, on a par with the bare infinitive, with to employed as a meaningless relic”.
servational correlate for his suggestion that this participant is a reference point or local topic: “It makes the prediction that raised NPs should tend to exhibit greater “topicality” than their unraised counterparts” (Langacker 1995: 38). Langacker (1995) did not himself test this prediction against discourse data, but Noël (1997, 1998, 1999) did, on a completely independent basis.


Though unaware of Langacker (1995) at the time, Noël (1997) does draw attention to a cautious suggestion by Borkin (1974, 1984) that the choice between a that-clause and an accusative and infinitive may have something to do with information structure (along the lines of Kuno 1972): infinitival complements “rely on previous discourse to complete their function”, whereas that-clauses do not (Borkin 1984: 60–61). Her evidence relies on informants’ judgements, which were not very supportive, but in a database I myself have collected of over a thousand paragraph-length extracts from the British National Corpus containing occurrences of believe, claim, judge, prove, show, and think with clausal complements, 91% of all infinitival complements have given, or “discourse-old” (Prince 1992), subjects (as in (46) and (47), in which the underlined constituents are coreferential), while 35% of all that-clause subjects do not take up previously-mentioned referents (as in (48) and (49)) (see Table 1). Langacker’s (1995: 38) prediction is therefore borne out by the data.

(46) During his retirement in Chelsea, when well over eighty, Sir Hans directed the arrangement of his enormous natural history collections from a wheelchair. Many famous people came to view the grandiose exhibition: the Prince of Wales judged it to be “an ornament to the nation”, as indeed it was to become. (ALU 164)

(47) Immoral or antisocial conduct demands an explanation in terms of inherently unobservable causes, be they “motives”, “intentions”, “desires”, “proclivities”, “spirit attack”, “witchcraft”, “disorders of the humoral system”, and so on. What is more, the same conduct may be subjected to a series of different interpretations as subsequent events show it to be part of a pattern of conduct or as an isolated instance, as implicating a wider or narrower range of social relationships, and so on. (CJ1 880)

(48) Those wanting to voyage further than comparatively familiar delicacies such as coppa, pancetta or fennel-flavoured salami, should look upwards. At certain times of the year, hanging from the ceiling amid the festoons of dried

12 Someone else who treats the subjects of accusative and infinitive complements as “topics”, i.e. as linguistic constituents that have “a linking function in the process of relating a sentence to its discourse context” (Davison 1984: 797) is Alice Davison. For her, the perception of a constituent’s topicality is the result of its syntactic markedness and these subjects are syntactically marked because they appear on the surface as objects. She adduces introspective evidence for their topicality to the effect that certain types of NP (e.g. proper names, referential uses of definite descriptions, specific indefinites) are more acceptable in this slot than others (e.g. attributive definite descriptions, non-specific indefinites, generic NPs).
sausages, cheeses, onions and garlic, will be a haunch of wild boar. When manager Victor Contini judges that the moment is right, the haunch is brought down to be skinned, boned, cured and thinly sliced like Parma ham. (A3C 375)

(49) Sainsbury, for example, defend the sky-high price of their organic vegetables by saying that they take less percentage profit on them, and that the wholesalers seem to be the ones jacking up the price. But how can courgettes, which are sold by the grower at, say, 25–30p a lb at the most, end up on the shelves at Safeway for £1.16 per lb? Two recent surveys clearly show that many shoppers are willing to pay more for organic food. But how much more? (ARJ 2608)

Table 1: “Given” vs. “new” complement subjects with believe, claim, judge, prove, show, and think.  

<table>
<thead>
<tr>
<th></th>
<th>“given”</th>
<th>“new”</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>that-clause</td>
<td>334 (65%)</td>
<td>179 (35%)</td>
<td>513 (100%)</td>
</tr>
<tr>
<td>infinitival</td>
<td>375 (91%)</td>
<td>35 (11%)</td>
<td>410 (100%)</td>
</tr>
</tbody>
</table>

Chi-square (df=1, N=923)=89.0, p<.001

Langacker’s (1995) thesis that that-clauses profile an entire process, whereas infinitival clauses do not, can also be argued to be in line with earlier writers’ intuitions that “fusion [i.e. the use of an infinitive whose subject is also the object of the matrix clause] destroys the complement clause as an independent proposition” (Mair 1990: 197), and that a that-complement puts a proposition “into maximal relief” (Borkin 1984: 59). In Noël (1997) I have suggested that the choice between both complements might therefore not be incompatible with an explanation in terms of Mann, Matthiessen and Thompson’s Rhetorical Structure Theory (see, e.g. Mann and Thompson 1986; Matthiessen and Thompson 1988; Mann, Matthiessen and Thompson 1992), which posits that most multi-unit texts consist of “nuclear” portions, which “realize the central goals of the writer”, and “satellite” portions, which “realize goals which are supplementary or ancillary to the central goals” (Matthiessen and Thompson 1988: 299). Since Matthiessen and Thompson (1988) have claimed that “subordination” is a grammaticalization of the Nucleus-Satellite relation, taxis could perhaps be employed as an observational correlate of what is more and less important in a text. I have therefore hypothesized that the finite pattern typically operates independently, whereas the infinitival pattern more usually occurs

13 N does not add up to over a thousand here because ‘empty’ subjects and subjects filled by indefinite pronouns, as in the following examples, were not taken into account: So long as we judge there to be a need for government and common policies, democratic principle will require that minorities have to accept majority decisions to which they are opposed (EVP 862), They would support the union if they thought it to be in their interest to do so (AC2 2296) Geometrical demonstrations which prove something to be true of all triangles do not do so by proving it to be true of an abstract triangle to which all triangles correspond (ABM 1543).
as part of subordinate constructions. This was confirmed for patterns with *believe* (see Noël 1997), not for patterns with *prove* (see Noël 1998), but when all verbs in the database mentioned above are considered together, the hypothesis remains confirmed (Noël 1999). 67% of all *that*-clause patterns operate as main clauses (as in (50) and (51)), while 53% of all infinitival patterns are part of subclauses (as in (52) and (53)) (see Table 2). 14

(50)  *So the Federal Reserve board, which carries the main responsibility for general oversight over credit legislation, judges that credit scoring is the most accurate way of discriminating between good and bad payers.* (CCT 1216)

(51)  *The Greenham Common women protesting against the siting of US missiles in Britain, have produced very interesting accounts of their actions and they have, of course, been widely reported and represented on all the mass media. In their own words they show that they are putting into practice feminist theories and analyses of the world especially the world of male power exemplified in defence strategy and in the courts: ...* (EFB 479)

(52)  *With the collapse of Britain's membership of the European Exchange Rate Mechanism on Wednesday, 16 September 1992, the trend towards monetary integration was in theory temporarily halted. However, the Government made it plain that they intended to go back into the ERM when they judged the moment to be right.* (H91 267)

(53)  *The choice of starting and finishing places was arbitrary — the desert does not begin at a defined line. Kano, the end of the camel routes, seemed to be the obvious terminus. There were a few suitable towns at which to start but we chose Beni Abbes because the map showed it to be two thousand miles from Kano.* (AT3 156)

Table 2: Patterns with *believe, claim, judge, prove, show,* and *think* operating independently vs. as part of subclauses

<table>
<thead>
<tr>
<th></th>
<th>main clause</th>
<th>subclause</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>that</em>-clause</td>
<td>391 (67%)</td>
<td>190 (33%)</td>
<td>581 (100%)</td>
</tr>
<tr>
<td><em>infinitival</em></td>
<td>201 (47%)</td>
<td>224 (53%)</td>
<td>425 (100%)</td>
</tr>
</tbody>
</table>

Chi-square (df=1, N=1006)=40.55, p<.001

14 Another way of reading Table 2 is that the hypothesis is confirmed for *that*-clauses, but not for infinitival complements, i.e. patterns with *that* prefer main clauses, but patterns with an infinitive do not care either way. The low percentage value for infinitival patterns in subclauses can, however, be attributed to two verbs only, *prove* and *show*, whose infinitival patterns prefer main clauses (in 67% and 71% of all investigated cases respectively). Both verbs are used to report on evidence, and as such are often used in scientific texts, whereas the others report on opinions. Lexical and/or text typical factors could have an influence here (see also Noël 1998a).
If one is agreed, therefore, that Langacker’s (1995) “meanings” can be translated onto an observational plane in this manner, empirical data seem indeed to be supportive of his analysis. The question of whether or not these non-conceptual, organizational phenomena should fall under the heading of semantics is a dogmatic issue, however. A semantic extremist would naturally answer the question in the affirmative. For the more traditional linguist, on the other hand, what we are dealing with here is part of pragmatics.

6. The pragmatics of the choice between that-clauses and accusative and infinitives

To all intents and purposes present-day linguistics, or some factions in it, seem to have done away with the traditional distinction between meaning and use, or indeed between semantics and pragmatics. On the one hand, there are those — the semantic extremists — who no longer make mention of pragmatics, allowing meaning and semantics to usurp use. On the other, there are those — the pragmaticians lead by Jef Verschueren (see, e.g. Verschueren 1999) — who, though they still theoretically recognize semantics as the study of fixed form-function relationships, at the same time question the feasibility of isolating context-independent meanings, allowing use and pragmatics to appropriate meaning. As far as the relation between forms and their meaning/function is concerned, both schools of thought — which differ in scope more than anything else, both calling themselves “functional” — censor the separation of the context-independent meanings of linguistic forms and the different uses to which these forms are put. It is questionable, however, whether it is an altogether good idea to completely lose sight of this distinction. Doing so not only introduces the risk of circularity — a form is said to have a certain meaning because it is used in a particular way, and it is said to have a particular use because it has a certain meaning (cf. Dauses 1998: 12) — but it also leads to a compulsion to attribute different meanings to different forms: if meaning equals use, different forms cannot merely have different uses, they must have different meanings.

But are all formal choices necessarily meaningful, or, granting that use is a kind of meaning, do they necessarily carry the same meaning with them whenever they are used, i.e. can they also be said to have a semantic, context-independent, meaning? An alternative to the dogma that there is meaning in all form, proposed by Dauses (1998),15 is that most formal choices are habitual choices that may or may not at one time have been meaningful but have now lost all meaning. In German, for instance, you mechanically use certain case forms after certain prepositions, you do not purposely pick a particular case in order to express a particular meaning (Dauses 1998: 11). In French, the subjunctive is often connected with “hypotheticality”, which could explain its use after verbs like craindre and douter and a conjunction like

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*avant que*, but it leaves unexplained its occurrence in combination with negative matrix clauses containing these very same verbs and after a conjunction like *après que* (Dauses 1998: 11). The fundamental mistake made by semantic extremists of Wierzbicka’s (1988) and Verspoor’s (1990) ilk seems to be that they are overextending a meaning that can be argued to be connected with one kind of patterning of a certain form (e.g. the occurrence of a *to*-infinitive after verbs like *want* and *order*, associated with “futurity” by Wierzbicka (1988) and with “causality” by Verspoor (1990)) and which may well be its original patterning, to all its patternings. The fundamental mistake inherent in Langacker’s (1995) proposal, on the other hand, is that he conflates the different uses to which finite and infinitival complements tend to be put with their basic semantics. The present author, for his part, remains convinced that in the absence of convincing evidence to the contrary the clausal complements of the kind considered here, do not have a different semantics (other than that infinitival complements have a preference for a particular type of proposition, i.e. “copular” propositions (see Noël 2001), not shared by finite complements). They do, however, tend to be employed differently.

If it were true that the choice of a *that*-clause rather than an infinitival complement, or the other way round, is made to convey a distinct meaning, one may wonder why linguists should have such a hard time pinpointing the difference? Surely they are language users themselves, so that with the help of a little introspection they should fairly easily be able to arrive at some sort of agreement on the meanings involved? Nevertheless, the views of the three semantic extremists that have come under the spotlight in this paper differ enormously. There are two who consider that the two complements express a different content, whereas for a third they express the same content but differ with respect to where they put the emphasis. But even the two who agree that it is a matter of content seem to entertain opposing ideas on what content is expressed by which complement. For one the *that*-clause expresses objective knowledge and the infinitive subjective knowledge, and for the other it is the infinitive which is objectively grounded whereas the finite complement lacks objective grounds. Neither suggestion is backed up by usage data, however. Indeed, both are based on a mistaken assumption of the real distribution of the two complements. Discourse-based data seem to confirm, though, that the difference between the two constructions is a matter of emphasis, to the extent that what receives expression by a *that*-clause appears to be more central to a writer’s goals, while what is expressed by an infinitive is often tucked away in the text. In addition, it seems reasonable that new information should be more prominent than old information, so it follows naturally that finite complements more often refer to discourse-new entities than do accusative and infinitives. This, by the way, is completely in line with the universal proposed by Givón (1990: 875–876; 1995: 36) that clauses that involve higher referential continuity tend to receive less-finite marking, which could by the same token be accounted for by the typical low prominence of patterns with infinitives. The typically high importance of patterns with *that*-clauses, on the other hand, could be related to (part of) Rohdenburg’s (1995: 368) “Complexity Principle”, (the relevant part of) which reads that “the more complex the dependent clause turns out to be, the greater is the need to make its
sentential status more explicit’, i.e. to use a finite rather than an infinitival complement; for the more complex a clause, the more information it contains, and the more central it should be to the writer’s goals. There is, therefore, independent evidence to situate the difference between the two patterns in the textual sphere. There is no way, however, in which the empirical evidence corroborative of a textual analysis could be related to a conception which places it on an ideational or interpersonal plane.

The data might, moreover, provide a key for deciding the question of whether textual matters like these are a matter of meaning or use. If predicating about a topical entity were the meaning of an infinitival complement, i.e. its distinctive semantic feature that would contrast it with a finite complement, then givenness would be a necessary condition for infinitival subjects, and newness for that-clause subjects, but this is clearly not the case. Nor does it appear to be a necessary condition for patterns with infinitives to be textually non-salient, or the reverse for patterns with finite complements. These are merely probabilities, not hard and fast rules. They are textual habits that are probably the result of the simple fact that an infinitival complement does not easily accommodate a large amount of information. Because of this they are unlikely to be used to convey important information, and as a result they tend not to be used to talk about newly-introduced referents. None of this, however, is inherently connected with either construction. Neither infinitival complements with discourse-new subjects, nor finite complements which are part of subordinate patterns, result in semantically anomalous utterances.

In linguistic theories that do not distinguish between semantics and pragmatics the meaning-or-use question does not arise, obviously, but if one sympathizes with Dauses’ (1998) characterization of (most) grammatical selections as automatisms, i.e. as involving a different level of consciousness and freedom of choice than lexical selections, then doing away with the traditional division of labour between semantics and pragmatics appears to be a case of throwing the baby out with the bath water, since grammatical selections like the one under discussion here are of the context-determined kind that constitutes the conventional domain of pragmatics. Given the textual nature of the selection of either a that-clause or an infinitival complement, the

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16 The complete Complexity Principle in Rohdenburg (1995) reads: “The less directly the dependent clause is linked to its superordinate clause, or the more complex the dependent clause turns out to be, the greater is the need to make its sentential status more explicit.” In later work (e.g. Rohdenburg 1996, 1999, this volume) he gave it a more abstract formulation, so as to make it applicable to other phenomena than clausal complementation: “In the case of more or less explicit grammatical options the more explicit one(s) will be preferred in cognitively more complex environments.”

17 The likelihood of different levels of consciousness being involved in different kinds of linguistic choices is also recognized by Verschueren (1999: 13, 66, 173ff.): “not all choices are made equally consciously or purposefully, […] some are automatic while others are highly motivated” (Verschueren 1999: 13). It seems reasonable to assume that context-independent, semantic, choices presuppose greater awareness than context-determined, pragmatic, ones.
use of one or the other construction does not seem a conscious choice by the speaker to convey a particular meaning. Instead, it is standard text-building practice.

References

Is there semantics in all syntax?


Chapter 5

Infinitival copular complement clauses in English
Explaining the predominance of passive matrix verbs

This article first provides empirical evidence from the 100-million-word British National Corpus in support of earlier less well-documented observations that infinitival copular complements occur much more often with passive matrix clauses (e.g. *Towns were thought to be organic or haphazard creations until recently*) than with active matrices (e.g. *One might even have thought him to be angry*), and then addresses the pending question of why this should be so. A previous explanation has invoked the different word order of the passive construction versus that shared by the active construction and finite complements, combined with the purported markedness of non-finite constructions. The alternative explanation presented here is based on the fact that though finite complements and infinitives with active matrices share the same word order, their typical information structure is different, in that the subjects of the former can introduce ‘new’ referents, while ‘given-ness’ seems almost a necessary condition for the subjects of the latter. It is claimed that the typical information structure of active matrices plus infinitives makes the construction a dispreferred one, because it leads to redundancy in referential continuity and causes conflicts between candidates for sentence topic/theme status, disrupting the thematic progression of the text.

1. Introduction

In the wake of Postal’s (1974) book *On Raising*, which was itself triggered off by work by Lees (1960), Rosenbaum (1967) and Chomsky (1973), a number of studies appeared in the linguistic mainstream of the day that addressed the issue of the supposed difference in meaning between infinitival and finite complement clauses after verbs like *believe, consider, find, prove, show*, etc. (e.g. Borkin 1974, 1984; Riddle 1975; Steever 1977; Maxwell 1984; for a discussion see Mair 1990: 196-200 and Noël 1997):“}

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1 The research reported on in this paper was made possible by the Research Fund of the University of Gent (*Bijzonder Universitair Onderzoeksfonds* contract no. 12052095).

2 All examples are taken from the first (1995) version of the British National Corpus, a licensed copy of which is available in the Department of English of the University of Gent. The corpus was queried using version 0.627 of the SARA client software. In the source code that follows each example the three positions before the space identify the excerpt it was extracted from (which can be looked up in Burnard 1995); the number following the space is the line number of the example within the excerpt.
(1) a. The recent series of disasters from The Herald of Free Enterprise onwards, has led us to believe that Britain is particularly unsafe. (A3B 84)
   b. We cannot claim these life stories to be “representative” in the strict social scientific sense, but we do believe them to be “valid”. (AP7 284)

(2) a. Mortensen (1933a) considered that O. clavigera is possibly distinct from Ophiomitrella cordifera, pointing out that the difference in shapes of the oral shield and disk spinelets could warrant specific distinction. (H79 1394)
   b. Correct me if I'm wrong, but I never saw the likes of “Doyler” sneaking off the pitch for a quickie, unlike, say, Jimbo Morrison or the boys in Led Zep who considered such interludes to be an amusing challenge to their versatility as artistes. (ED7 1733)

(3) a. Many currants are now grown in Australia, but I find that the best are the tiny Greek vorzittzas, which are sweet and plump. (ABB 1405)
   b. This radical critique of workplace organization under modern capitalism finds technology to be developed and applied in ways consistent with the dominant relations of production. (HTF 1444)

(4) a. “I aim to prove that privacy is a thing of the past”, says Dame Edna. “I prod and pry in all the little nooks and crannies — but it is all done in a caring way.” (CH1 4407)
   b. The newly published Annual Report on last season's excavations by the British School at Rome at San Vincenzo al Volturno, Molise, in Central Italy, gives details of the remains of the apse of the ninth-century Carolingian abbey church of San Vincenzo Maggiore, proving the church to be the largest of its date south of the Alps. (CKU 873)

(5) a. Many surveys show that industrialists are unsure about the specific skill demands of the jobs they offer and appear to be only certain that what they need is not more trained labour but access to cheaper raw materials (Berg, 1970). (F9E 1575)
   b. The weakness of glass fibres brings us to the question of Griffith cracks and it also brings us back to Professor Inglis, whom we left in Chapter 2 worrying about why ships broke in two at sea when simple calculation showed them to be amply strong enough. (CEG 186)

(6) a. Why do some people think that faith is necessarily troubled by doubt but that knowledge is not? (C8V 397)
   b. BCAR Chairman Steve Challis welcomed delegates from museums and groups all over the UK to the meeting, explaining that he thought BCAR to be “probably one of the smallest groups in the BAPC”. (CGL 1252)

There is no received opinion on the purported semantics of the choice between infinitives and that-clauses in such sentences. Elsewhere I have provided evidence in support of the thesis that this choice is not semantically but pragmatically motivated, accounting for it in terms of information structure and discourse organization (Noël 1997). The present study addresses the observation (made by, e.g., Postal 1974: 305, Bolinger 1977: 129 and Quirk 1965, albeit on the basis of little evidence) that the infinitival complement more often has a passive matrix than an active one (compare the [c] examples below with the [b] examples above) and argues that this imbalance can be explained along the same lines. The studies mentioned above on the
Explaining the predominance of passive matrix verbs

“meaning” of infinitival complements vs. that of that-clauses did not address this problem, which indeed cannot be accounted for with semantic conjecture.

(1) c. 1 in 500 Londoners are believed to be infected. (A00 22)
(2) c. Although the Victorian era is considered to be the great age of plant collectors, the ancient Egyptians recorded plant collecting expeditions in their hieroglyphics. (A0G 130)
(3) c. A recent survey by the Consumers Association (CA) showed that a third of the tools hired from 32 randomly selected shops were found to be faulty when examined by experts. (A70 401)
(4) c. Some of the social and economic assumptions on which Beveridge and other pioneers had based their welfare schemes had been proved to be over-optimistic. (A66 431)
(5) c. Masculine sexuality is shown to be complex and unstably implicated within the whole social domain. (A6D 935)
(6) c. Fish is thought by many to be “brain-food”. (B7D 1652)

Before turning to an explanation, however, the present article will first establish the size of the proportion of passive to active matrices for about sixty verbs that display the alternation between that-clauses and infinitival copular complements, because to date the extent of this lopsided proportion has not been properly documented. Mair’s (1990) very thorough and encompassing study of Infinitival complement clauses in English, which includes a section on ‘The textual and structural factors responsible for the skewed relationship between actives and passives’, is based on evidence from the corpus of the Survey of English Usage, which at the time Mair collected his data comprised 895,000 words (Mair 1990: 13), but “[t]he only passive matrix verb attested often enough in the corpus to warrant any definite conclusions is say” (Mair 1990: 183), of which there were 24 occurrences. The data that will be presented here are taken from the more than a hundred times larger 100-million-word British National Corpus (BNC).

2. The predominance of passive matrix verbs with infinitival copular complements

The verbs that were selected for investigation are the sixty-odd “B-element R-triggers” (i.e. verbs of the type of believe that “trigger Raising”, or, in more theory-neutral terms, which display variation between that-clauses and to-infinitival complements) which Postal (1974: 297-317) lists in his chapter on “The scope of Raising in clause domains”. Here they are in alphabetical order:

- acknowledge, admit, affirm, allege, ascertain, assume, believe, certify, concede, consider, declare, decree, deduce, deem, demonstrate, determine, discern, disclose, discover, establish, estimate, feel, figure, find, gather, grant,

3 This is not a complete list of all verbs that display the alternation. For additions to the list, see Mair (1990: 175-176), who also refers to a list by Hudson (1971: 369-372).
In order to determine the frequency of passive verbs with infinitival complements the BNC was queried for occurrences of the past participle form of the verb either immediately followed by *to be* (i.e., *V ed to be*, e.g. (8)) or separated from *to be* by a *by*-phrase with a one-, two-, three- or four-word NP (i.e., *V by _ _ to be*, *V by _ _ to be*, and *V by _ _ _ _ to be*, e.g. (9)). To determine the frequency of active verbs with infinitival complements the corpus was queried for the base form, the *s*-form, the *ing*-form and the preterite and/or past participle form of the verb followed by either a one-, two-, three- or four-word NP and *to be* (i.e., *V _ to be*, *V _ _ to be*, *V _ _ _ to be*, and *V _ _ _ _ to be*, e.g. (10)) or by *to be* only (i.e., *V to be*, to include occurrences in relative clauses like (11), and other cases in which the subject of the infinitive is fronted, like (12)).

(8) At a time when scientific advance was seen as universally beneficial, the nuclear industry was *judged to be* at the cutting edge of technological endeavour. (AN9 631)

(9) Part or all of the aedeagus is *held by some authors to be* of a secondary, non-appendicular nature but others consider it to be formed by the division of the gonapophyses of the 9th abdominal segment, the two median halves fusing during development to form the penis while the lateral halves constitute the parameres. (EVW 754)

(10) Although puzzled, he hesitated to investigate more closely for fear his driver should *imagine his interest to be* prurient. (B20 1699)

(11) Given (or old) information is that knowledge *which* the speaker *assumes to be* in the consciousness of the addressee at the time of the utterance. (FRL 1193)

(12) *This* I subsequently *discovered to be* false. (B78 2194)

The results of these queries are displayed in Tables 1 to 3. Table 1 lists the verbs alphabetically; Table 2 lists only those verbs for which the queries produced over a hundred occurrences, starting with the verb that has the highest proportion of passives to actives, and ending with the verb that has the highest proportion of actives to passives; Table 3 lists the remaining verbs according to the absolute number of attested passives in descending order.

<table>
<thead>
<tr>
<th>verb</th>
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<th>% passives</th>
<th>n actives</th>
<th>% actives</th>
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Explaining the predominance of passive matrix verbs

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<th>Percentage</th>
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Table 2: Proportion of passive to active matrix verbs for the verbs with more than 100 occurrences (listed in descending order for the passives, and in ascending order for the actives)

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<th>% actives</th>
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Explaining the predominance of passive matrix verbs

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<td><strong>Total:</strong></td>
<td><strong>73.83</strong></td>
<td><strong>26.17</strong></td>
</tr>
<tr>
<td><strong>Average:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Median:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Number of passive and active matrix verbs for those verbs of which there are less than 100 attested occurrences, listed in descending order as per absolute number of passives.
The following observations can be made. A first one, which is of minor importance,
is that a fair number of the verbs mentioned by Postal — who repeatedly refers to
“[his] own speech” (e.g. Postal 1974: 305, 309, 312) — were not attested at all in the
BNC with infinitival copular complements. This may point to differences between
American and British English and/or to certain peculiarities of Postal’s idiolect.

Much more relevant for the issue I want to address is the observation that the above-
mentioned intuition that matrix verbs of infinitival copular complements are more of-
ten passive than active is basically correct: 74% of all the attested verb-complement
combinations have passive matrices. This is something that needs to be explained.
On the other hand, 74% is also the median value, which means that for one in two of
the verbs investigated the percentage value of passives is lower. Active matrix verbs
should therefore not be cast aside as rare occurrences. Restricting ourselves to the 23
verbs for which the total number of attested infinitival complements exceeds a hun-
dred (Table 2), there are even five verbs which more often have an active than a pas-
sive matrix. If there is a general principle which accounts for the high occurrence of
passives, these deviations from this principle will need to be explained as well.

3. Explaining the predominance of passive matrix verbs

Mair (1990: 178) has already dismissed the explanation offered by Bolinger (1977:
129) that “[t]hese verbs express opinions and viewpoints concerning which the
speaker, when he wants to sound impressive, would rather shift responsibility to
some unnamed — and hence remote and powerful — agent”, which passive matrix
verbs allow them to do, saying that “to trace back the emergence and spread of a
grammatical construction solely to the speaker’s psychological stance does seem far-
fetched”. Without question the popularity of many of the (BE) Ved to be patterns,
particularly in genres like news texts and scientific discourse, can be related to the
fact that these patterns have become grammaticalized as lexicogrammatical
paradigmatic options available in systems of ‘evidentiality’ (cf. Chafe and Nichols,
Explaining the predominance of passive matrix verbs

eds., 1986; Thompson and Mulac 1991; Traugott 1995; Verhagen 1996), but how did the option become available in the first place?\(^4\)

Mair himself suggests that “the higher frequency of passive matrix verbs is mainly due to the fact that, unlike their active analogues, such passive constructions are a useful means of redistributing sentence information” (1990: 180), i.e. passive matrices allow one to move the subject of the complement clause to sentence-initial position, the unmarked position for information that is contextually ‘given’ (as argued in Bolinger 1952; Chafe 1976, 1987; Firbas 1967, 1992; Givón 1983; Halliday 1967, 1985: chapter 3; Kuno 1972; Prince 1981), whereas

\[\text{[i]f the matrix verb is in the active voice, the order of constituents is exactly the same, regardless of whether an infinitival or a finite complement clause is used. In most cases, therefore, the speaker or writer will choose the stylistically and structurally less marked that-clause.}\]

(Mair 1990: 181)

Compare the corpus example (13a) with the constructed alternatives (13b) and (13c). In (13a), with a passive matrix plus infinitive, the pronoun referring to Ian Spiro is in sentence-initial position; in both (13b) and (13c), with a finite complement and an active matrix plus infinitive respectively, it follows the matrix verb.

(13) a. Briton hunted after family is massacred
   By Shenai Raif
   BRITON Ian Spiro was yesterday named as a suspect by Californian police hunting the killer of his wife and three children. He is thought to be armed with a handgun. The 46-year-old businessman has been missing since the bodies of his family were found at their luxury home in San Diego on Thursday. At first, police were not sure if he was also a victim or on the run from hitmen. But after a detailed examination of the house they said he was suspected of the shootings. (K97 865)

b. Police think (that) he is armed with a handgun.

c. Police think him to be armed with a handgun.

So infinitives with passive matrices provide a textual alternative to finite complements which infinitives with active matrices do not, and the latter have the additional disadvantage, says Mair, that they are more “marked” than their finite counterparts. The alternative explanation for the predominance of passive matrices which I would like to defend in this paper offers a corrective to Mair’s account. I would like to argue that there is no need for this questionable deus ex machina of stylistic and structural markedness, whose impact it might be difficult to prove, and

\(^4\) It falls outside the scope of this paper to argue that the term ‘grammaticalization’ is correctly applied here. Grammaticalization processes do not themselves explain high frequency, however, since frequency is a necessary condition for such processes to occur in the first place (see Traugott and Heine 1991: 9).
which, if markedness is defined on the basis of frequency, introduces the risk of making the explanation circular.\textsuperscript{5}

Something Mair did not take into account is the typical information value of the subjects of infinitives with active matrices, which indeed he could not do because the evidence he presents is based on examples with say, which does not take an infinitival copular complement when it is active. Yes, subjects of passive matrix verbs with infinitives typically have ‘given’ referents, whereas the subjects of that-clauses more often introduce ‘new’ referents, but what about the subjects of infinitives with active matrices? Using evidence based on examples with believe and prove, I have established elsewhere (Noël 1997 and 1998) that they, too, are typically ‘given’: in 90\% of all cases with believe, and in 94\% of all cases with prove. Subjects of that-clauses after these verbs, on the other hand, introduce ‘new’ referents in 36\% and 30\% of all cases respectively. Evidence based on examples with think further confirms this.\textsuperscript{6} 72\% of all occurrences of the THINK \textit{NP to be} pattern (48 cases out of 67) occur in co-texts like (14)-(16), in which the NP takes up a referent from a preceding clause in the same sentence or from a previous sentence.

(14) This distinction can be put briefly by saying that whereas an appellate court has power to decide whether the decision under appeal was “right or wrong”, a court exercising supervisory powers may only decide whether \textit{THE DECISION} under review was “legal” or not. If \textit{THE DECISION} is illegal it can be quashed; otherwise the court cannot (with one exception) intervene, even if it thinks \textit{THE DECISION to be} wrong in some respect. (EBM 94)

(15) Everywhere Joan went, RICHARD would appear, tipped off by mutual friends in Virgin, among whom he acquired the nickname Tag - after his constant request, “What are you doing tonight? Seeing Joan? Mind if I tag along?” Joan’s friends did not think BRANSON to be a particularly eligible figure. (FNX 344)

(16) Although the instruction books that come with new machines recommend certain ways of setting such machines up, I have always liked to experiment across the range of possible settings. On this field I found the best combination was to set the Silver Sabre at \textit{MINIMUM DISCRIMINATION AND MAXIMUM SENSITIVITY}. (After quite a few months of use, I still think \textit{THESE to be} the best settings for ploughed land.) (G30 742)

In each of these examples the constituents in caps are coreferential. Sometimes (in 11 cases out of 67 = 16\%) the subject of the infinitive summarizes a whole state of affairs expressed in the previous discourse, as in (17).

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\textsuperscript{5} The conventional approach which identifies non-finite structures as marked is questioned by Givón (1995: 34).

\textsuperscript{6} 67 occurrences of THINK \textit{NP to be} were compared with 100 instances of THINK \textit{that NP is/are}. Both patterns were looked for with one-, two- and three-word complement-clause subjects. The 100 instances of the THINK \textit{that} pattern were a random reduction of 1455 occurrences in which the original proportion of one-, two- and three-word subjects was maintained.
(17) Many women of a previous generation, in which sex and reproduction were seen as inevitably linked, believed that sex stopped — or at all events should stop — with the “change of life”. Some still think this to be the case. (EW8 698)

There is only one case in which the subject of the infinitive introduces ‘new’ information:7

(18) I baited a 6's hook to 6lb b.s. line paternostered on a 1O oz bomb with half a lobworm and sent it out to the marker. The other rod I baited with sweetcorn. Almost immediately I experienced a series of knocks and pulls to the worm rod but nothing concrete to strike at. I was getting rather frustrated abortively striking at these plucks and finding my worm chewed up. [I] thought bream to be the culprits, but couldn't be sure because so far I had not seen any prime out in the swim to indicate they were, in fact, present there.

The subjects of that-clauses, on the other hand, take up a referent from the previous discourse in only forty-six of the hundred examples. In ten cases they refer to a state of affairs expressed in the previous discourse. In twenty-three cases, however, they either introduce new referents or reintroduce one that has remained unmentioned for a couple of sentences.8 Here are a few examples of the latter kind:

(19) The dream of making this world into a global market can only come about by perpetuating injustice. As the Uruguayan author Eduardo Galeano wrote: “Incapable of combating poverty, the dominant culture combats the poor and blesses the violence of power.” That’s why some people think that communication is needed — to convince us that it is better to “have” and not to “be” that happiness is to possess, to compete and to succeed no matter how. But that is domination, not communication. (EBJ 30)

(20) Drinking every day is least common in the North, where men are more likely to drink a moderate 2 to 3 times a week. Job satisfaction is least important for Southern men and most important in the North, while Midlanders are not worried about having a career. Midlanders value owning their own home more than Southerners, who think that freedom is important. (ECT 1274)

(21) Despite her long-standing affair and rumoured pending marriage to Commander Tim Laurence, Anne has managed to escape the sort of publicity that has dogged other female members of The Firm. Sexist cynics might suggest this is because she doesn’t have Di’s looks or Fergie’s telephotogenic qualities. I prefer to think that Anne’s secret is that if you act like royalty, the chance is you’ll be treated like royalty. (HAE 2935)

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7 In the remaining 7 cases the subjects are non-referential, as in They would support the union if they thought it to be in their interest to do so (AC2 2296) and In the British Social Attitudes Survey of 1988, 90 per cent of people thought there to be less respect for teachers amongst parents and pupils than 10 years ago (AN5 1223).

8 Since the subjects of that-clauses also often take up ‘given’ referents, information structure cannot be the only factor at work in the choice between the finite and non-finite patterns. For a discussion of another possible contributing factor, see Noël (1997).
Chapter 5

*Communication* in (19), *freedom* in (20), and *Anne’s secret* in (21) are all mentioned for the first time in their respective paragraphs.

Table 4 summarizes the data for the three verbs, *believe, prove* and *think*, when used in the active voice.

Table 4: Percentages of infinitives with ‘given’ and *that*-clauses with ‘new’ subjects

<table>
<thead>
<tr>
<th>verb</th>
<th>‘given’ infinitival subjects</th>
<th>‘new’ <em>that</em>-clause subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>believe</td>
<td>90%</td>
<td>36%</td>
</tr>
<tr>
<td>prove</td>
<td>94%</td>
<td>30%</td>
</tr>
<tr>
<td>think</td>
<td>88%</td>
<td>23%</td>
</tr>
<tr>
<td>Average:</td>
<td>91%</td>
<td>30%</td>
</tr>
</tbody>
</table>

In other words, also with active matrices givenness comes close to being a necessary condition for the subjects of infinitival complements, which is completely in line with the linguistic universal proposed by Givón (1990: 875-876; 1995: 36) with respect to the relation between finiteness and thematic coherence or continuity: “Clauses that involve higher referential continuity tend to receive less-finite marking”. More important for the argument at hand, however, is that the typical information value of the subjects of infinitival complements leads to greater referential continuity (e.g. Givón 1993: 286-287) or more anaphoric grounding (e.g. Givón 1995: 350) of sentences with active matrices than is necessary for efficient communication, since two given elements open the sentences in that case, instead of just one with passive matrices. Compare the following corpus examples of passive matrices with their constructed active counterparts:

(22)a. Police launched a nationwide hunt for Ahrjinder Singh Dosanjh — known as Bobby — after he was viciously beaten and bundled into a van. Hours later a man believed to be East End boss Edward Clancy rang detectives accusing the Asian of taking his £38,000 Silver Shadow. *Burly Clancy — the 6ft, 19st owner of a crane hire business — is thought to be one of five men involved in the ambush at Leamington Spa magistrates court, Warwicks. The five heavies pounced on Dosanjh, 21, as he walked through the court lobby after being bailed on an unrelated theft charge. He was dragged kicking and screaming to a van parked nearby. Witnesses could see the Asian getting a “severe beating” as the van raced off. (CH2 6078)

b. They think Burly Clancy — the 6ft, 19st owner of a crane hire business — to be one of five men involved in the ambush at Leamington Spa magistrates court, Warwicks.

(23)a. Pub chain trains for Europe

Taylor Walker is benefiting from a customer care programme that it believes will enable it to compete with its European counterparts. Taylor Walker managing director David Longbottom said: “Unlike our European counterparts, in the UK we do not perceive bar work as having professional
status. Bar work is thought to be transitory, undemanding and unskilled. We are trying to correct this with training programmes and staff recognition schemes.” (A7F 695)

b. In the UK we think bar work to be transitory, undemanding and unskilled.

The (b) sentences, with active matrices, are more redundant referentially than their counterparts with passive matrices in (a), because both the active matrix clause subjects and the subjects of the infinitives take up referents from the previous sentences. Often such referential redundancy would put a non-topical or non-thematic given referent before a topical/thematic one, upsetting the ‘thematic progression’ (cf. Daneš 1974) of the text:

(24) a. Many bio-acoustic experts agree that the echolocation clicks are created by implosive movements of air in the nasal passages, but the exact process of sound production and projection is unknown — possibly, the echolocation waves pass through the melon. The manner in which the dolphin receives THE RETURNING ECHOES is also a mystery, but THEY are thought to be picked up by all parts of the body, to travel through the bones to THE HEAD. A significant proportion of THE DOLPHIN’S brain is thought to be used in processing the information produced by the echolocation system. (ABC 331)

b. The manner in which the dolphin receives the returning echoes is also a mystery, but experts think them to be picked up by all parts of the body, to travel through the bones to the head. They think a significant proportion of the dolphin’s brain to be used in processing the information produced by the echolocation system.

(25) a. We undertook a packed programme. Seven churches and a museum on one day devoted to Byzantine mosaics in Ravenna; Rimini; a unique medieval library in Cesena; and the perfect hilltop town of URBINO, full of fascinating treasures. In the 15th century THE TOWN and its palace were thought to be the most beautiful in all Italy. Even in incessant rain it still seemed lovely and, at least within its walls, remarkably unspoilt, though behind the medieval façades many houses have been relentlessly modernised. Walking around Urbino’s quiet streets on a wet Sunday out of season was an evocative and fascinating experience, even though the churches and palace had closed early in the morning. (AHK 1683)

b. In the 15th century people thought the town and its palace to be the most beautiful in all Italy.

If the extract in (24) had been about bio-acoustic experts rather than dolphins, the (b) sentences with active matrices, in which these experts are ‘topic’ or ‘theme’, would have fitted in quite naturally. The passive matrices in the original (a) version, however, help to ensure that most clauses receive a dolphin-related topic/theme and to avoid that the experts acquire theme status on a higher level (paragraph or text). In (25) the passive establishes the town of Urbino as the theme of the rest of the paragraph and prevents reference to non-topical/non-thematic people. In other words, the active matrix clause subject, whose sentence-initial position makes it topic/theme by default (see, e.g., Givón 1993: 47; Halliday 1985: 38), often conflicts with the given
subject of the infinitive, itself a candidate to be topic/theme of the sentence. Passive matrices remove this conflict. An examination of a hundred occurrences of the BE thought to be pattern revealed that in 25 cases the suppressed ‘agent’ (or ‘thinker’) is a previously mentioned participant with a low topicality value (as in [24]; another example is [26], in which the ‘thinkers’ can be assumed to be the mentioned relatives); in 75 cases the unexpressed ‘thinker’ does not have specific reference, but can be said to refer to people in general (as in [25]) or, especially in scientific or media texts, people who know (as in [27]).

(26) Anxious relatives raised the alarm when the men, who all live near Borth, were nearly five hours overdue. One man's father told coastguards that normally the group only travelled a few miles along the coast on the speedboat trips. Aberystwyth lifeboat secretary David Jenkins said one of the missing men was wearing a wetsuit but the other two were thought to be wearing shirts. (HJ4 7031)

(27) PLANNED VILLAGES
The idea that villages might have been planned, or at least regulated in their growth, is a relatively new one. Towns, which have been more intensively studied and for which there is generally more documentary and cartographic information, were thought to be organic or haphazard creations until recently. Exceptions were known, of course, like Salisbury, Winchelsea and Ludlow, where deliberately created towns were well documented and where the regular gridiron street pattern suggested town planning. (H8U 873)

Sometimes, however, thematic progression makes it necessary that the active subject is mentioned, ensuring the continued existence of the active pattern:

(28)a. He suspected that, inside herself, she was totally bewildered and perhaps despaired of ever finding Resenence Jeopardy. Over the years, Dauntless had become used to loneliness, but he suspected that for Cleo it was a new condition which she was having trouble getting used to. He knew that she thought him to be a stiff and unimaginative person. (GW2 3246)
b. ... He knew that he was thought to be a stiff and unimaginative person.

(29)a. At the sight of Amaranth Wilikins there was a deal of coughing, a shuffling of feet and a perceptible rise in the level of attention. Ron Barton, who had had a word with his editor at his regular table at the Savoy Grill, had been told he could pay five thousand for an exclusive if she was thought to be worthwhile. (HNK 1744)
b. ... if she was thought to be worthwhile.

(30)a. HIGHER AVERAGING As has been said, a decision was made to abandon high-order averaging by the instrument so as to obtain a full record of the variations in measurement. The author did not understand these and thought them perhaps to be due to changes in reflectance. (HGX 1834)
b. ... The author did not understand these and they were thought perhaps to be due to changes in reflectance

Note that, upon reading the (b) sentences, one does not automatically connect the unexpressed ‘thinker’ with the participant referred to by the active subject in the (a)
Explaining the predominance of passive matrix verbs

sentences. Rather, one’s first interpretation is likely to be that people in general are implicitly referred to, which may point to the grammaticalization referred to above. I would argue, however, that this grammaticalization is as much the result as the cause of the predominance of the passive pattern and that the process was brought about by the fact that the active pattern is usually a dispreferred pattern for information-structural reasons.

The fact that some verbs, like imagine, declare and prove, more often occur in the active than in the passive (see Table 2), may be due to their lexical-semantic specificity, which might favour the mentioning of two participants, instead of just the one.

4. Conclusion

In this article I have presented empirical evidence showing that infinitival copular complements typically occur much more frequently with passive matrix clauses than with active matrices. An earlier attempt at explaining this predominance of passive matrices attributed it to the fact that infinitives with passive matrices order their participants differently from finite complements and that infinitives with active matrices do not offer this advantage, so that when the word order shared by the that-clause and the infinitive with active matrix is required for reasons of information structure the former is the preferred, purportedly unmarked, choice. The supposed markedness of non-finite structures has been questioned, however, and an alternative explanation might therefore be in order. I have established that not just infinitives with passive matrices but also infinitives with active matrices do information-structurally different things than that-clauses. The subjects of that-clauses often introduce ‘new’ referents, whereas the subjects of infinitival complements typically take up previously-mentioned referents, irrespective of whether their matrices are active or passive. I would posit, however, that the typical information structure of an active matrix plus infinitive normally makes it a dispreferred construction, because of the redundancy resulting from the ‘givenness’ of both the matrix clause subject and the subject of the infinitive. In addition, the subject of the infinitive often competes with the matrix clause subject for ‘topic’ or ‘theme’ status.

References


9 See note 4.
Chapter 5


Explaining the predominance of passive matrix verbs


Part II

The passive matrices of accusative and infinitives
A case of grammaticalization
Chapter 6

The passive matrices of English infinitival complement clauses
Evidentials on the road to auxiliariness?

English verbs of the believe type, which display variation between that-complements and infinitival complements, more often combine with infinitives as passives than as actives. Though there are good information/thematic structural reasons for this (Noël 1998b), the higher frequency of passive matrices could also be a concomitant of a grammaticalization process as a result of which (some of) these matrices are turning into auxiliary-like evidentials. Anderson’s (1986) four-part definition of true (grammaticalized) evidentials is used to establish whether they can qualify as such. The fact that passives are more tolerant of lexical (even dynamic) infinitives than actives (which prefer be and statives) is adduced as evidence of grammaticalization. Individual instances of the passive pattern are differentiated using three criteria of grammaticalization: frequency, expansion and intraparadigmatic variability.

1. Two empirical facts

The purpose of this article is to connect, and to try and account for, two empirical facts about English verbs of the believe type, which alternate that-clauses with to-infinitival complements (verbs Postal 1974 termed “B-element R-triggers”, i.e. verbs of the type of believe that “trigger raising”). The first of these facts is that such verbs much more often combine the infinitival complement with a passive matrix clause than with an active matrix (as observed by Postal 1974: 305, Bolinger 1977: 129, and Quirk 1965, and as established empirically by Mair 1990 on the basis of an 895,000-word corpus of the Survey of English Usage, and more thoroughly by Noël 1998b using the 100-million-word British National Corpus, henceforth “BNC”). On the whole, sentences of the kind of the [a] examples in (1)-(6) occur about three times more frequently than instances like the [b] examples, but for some representatives

\[ \text{[a]} \]

\[ \text{[b]} \]

\[ \text{[c]} \]

\[ \text{[d]} \]

\[ \text{[e]} \]

\[ \text{[f]} \]

\[ \text{[g]} \]

\[ \text{[h]} \]

\[ \text{[i]} \]

\[ \text{[j]} \]

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\[ \text{[m]} \]

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\[ \text{[o]} \]

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\[ \text{[w]} \]

\[ \text{[x]} \]

\[ \text{[y]} \]

\[ \text{[z]} \]

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\[ \text{[B]} \]

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\[ \text{[Z]} \]
of the class figures are much more dramatic, to the point that some verbs do not display the active pattern at all, most notably *say, repute and rumour.*

(1) a. Many English stick dances, like those elsewhere, *are believed to be* ancient rituals in which the performers are enacting some job necessary for the well-being of the community. (A12 1292)

b. Italian police *believed* Baragiola *to have been* directly involved in the kidnapping of Aldo Moro in 1978. (HKU 3479)

(2) a. Up to 65 protesters *were reported to have been* burned to death when security forces set fire to a shopping centre in which they were seeking refuge. (A03 85)

b. They [i.e. Odonata] were sighted in China, where those who attempted to eat them *reported them to be* tasteless or unpleasant. (HA0 3283)

(3) a. Last year Caradon bought the Everest double-glazing business from RTZ for £32m and *was thought to be* stalking further acquisitions. (A1E 143)

b. Having argued that animals can act intentionally (to which I will return in the section on autonomy), he *thinks this to be* “possible only for those who are self-conscious” (1983: 75). (CM8 55)

(4) a. In the mid 1960s annual world catches of beluga *were estimated to be* around 5000 — 6000, and 20 years ago in the USSR alone, catches were 3000–4000. (ABC 825)

b. Although no exact figures on EDS’ Italian revenues in 1992 were available, an EDS spokesman *estimated them to be* $20m, most of which are General Motors Corp-related. (CNK 135)

(5) a. Some smaller breweries *are understood to have stopped* supplying the Famous Firkin wholesale division, as they cannot afford the risk should it cease trading. (A14 1154)

b. For Kelsen, the dynamic principle is characteristic of legal positivism which *understands law to be* in some sense a product of human acts and decisions rather than a deduction from timeless and immutable principles. (EB2 1267)

(6) a. Catering & Allied took presentations from half a dozen systems suppliers, and put three possibles on trial, but the two others *were found to be* too complex for the company’s purposes. (A0C 686)

b. It is undeniable that most readers *find amusement to be* part of their experience of these texts. (HXS 388)

Table 1 displays the proportion of passive to active matrix verbs for the sixty-odd *believe*-type verbs that Postal (1974: 297-317) lists in his chapter on “The scope of raising in clause domains”. The figures were obtained in the following manner: In order to determine the frequency of passive verbs with infinitival complements the BNC was queried for occurrences of the past participle form of the verb either immediately followed by *to be* (i.e., *Ved to be*) or separated from *to be* by a by-phrase with a one-, two-, three- or four-word NP (i.e., *Ved by _ to be, Ved by _ _ to be, Ved by _ _ _ to be, and Ved by _ _ _ _ to be*). To determine the frequency of active verbs with infinitival complements the corpus was queried for the base form, the *s*-form, the *ing*-form and the preterite and/or past participle form of the verb followed by either a one-, two-, three- or four-word NP and *to be* (i.e., *V _ to be, V _ _ to be, V _ _ _ to be*, and *V _ _ _ _ to be*) or by *to be* only (i.e., *V to be, to include*
occurrences in relative clauses and other cases in which the subject of the infinitive is fronted). The index value in the last column of Table 1 was arrived at by dividing the absolute number of passive occurrences by the absolute number of active occurrences and should therefore be read as follows: “there are more than 35 times as many passive matrices containing the verb report than there are active matrices with this verb”, “there are twice as many passives than actives with show”, and so on. If the index value is less than 1.00, there are more actives than passives, e.g. in the case of feel, take and prove.

Table 1: Proportion of passive to active matrix verbs

<table>
<thead>
<tr>
<th>verb</th>
<th>n passives</th>
<th>n actives</th>
<th>index value</th>
</tr>
</thead>
<tbody>
<tr>
<td>say</td>
<td>1945</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>report</td>
<td>391</td>
<td>11</td>
<td>35.55</td>
</tr>
<tr>
<td>allege</td>
<td>101</td>
<td>3</td>
<td>33.67</td>
</tr>
<tr>
<td>suppose</td>
<td>1935</td>
<td>75</td>
<td>25.80</td>
</tr>
<tr>
<td>think</td>
<td>1382</td>
<td>109</td>
<td>12.68</td>
</tr>
<tr>
<td>deem</td>
<td>409</td>
<td>51</td>
<td>8.02</td>
</tr>
<tr>
<td>estimate</td>
<td>212</td>
<td>29</td>
<td>7.31</td>
</tr>
<tr>
<td>presume</td>
<td>98</td>
<td>15</td>
<td>6.53</td>
</tr>
<tr>
<td>reckon</td>
<td>113</td>
<td>19</td>
<td>5.95</td>
</tr>
<tr>
<td>hold</td>
<td>417</td>
<td>80</td>
<td>5.21</td>
</tr>
<tr>
<td>understand</td>
<td>161</td>
<td>53</td>
<td>3.04</td>
</tr>
<tr>
<td>assume</td>
<td>403</td>
<td>146</td>
<td>2.76</td>
</tr>
<tr>
<td>find</td>
<td>1033</td>
<td>453</td>
<td>2.28</td>
</tr>
<tr>
<td>judge</td>
<td>141</td>
<td>70</td>
<td>2.01</td>
</tr>
<tr>
<td>show</td>
<td>584</td>
<td>292</td>
<td>2.00</td>
</tr>
<tr>
<td>know</td>
<td>564</td>
<td>392</td>
<td>1.44</td>
</tr>
<tr>
<td>consider</td>
<td>1086</td>
<td>905</td>
<td>1.20</td>
</tr>
<tr>
<td>believe</td>
<td>916</td>
<td>802</td>
<td>1.14</td>
</tr>
<tr>
<td>feel</td>
<td>235</td>
<td>252</td>
<td>0.93</td>
</tr>
<tr>
<td>take</td>
<td>237</td>
<td>315</td>
<td>0.75</td>
</tr>
<tr>
<td>prove</td>
<td>56</td>
<td>98</td>
<td>0.57</td>
</tr>
<tr>
<td>declare</td>
<td>57</td>
<td>162</td>
<td>0.35</td>
</tr>
<tr>
<td>imagine</td>
<td>9</td>
<td>94</td>
<td>0.10</td>
</tr>
<tr>
<td>repute</td>
<td>98</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>rumour</td>
<td>85</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>acknowledge</td>
<td>54</td>
<td>14</td>
<td>3.86</td>
</tr>
<tr>
<td>recognize</td>
<td>48</td>
<td>15</td>
<td>3.20</td>
</tr>
<tr>
<td>discover</td>
<td>37</td>
<td>25</td>
<td>1.48</td>
</tr>
<tr>
<td>state</td>
<td>37</td>
<td>13</td>
<td>2.85</td>
</tr>
<tr>
<td>guarantee</td>
<td>31</td>
<td>1</td>
<td>31.00</td>
</tr>
<tr>
<td>reveal</td>
<td>20</td>
<td>64</td>
<td>0.31</td>
</tr>
<tr>
<td>demonstrate</td>
<td>20</td>
<td>6</td>
<td>3.33</td>
</tr>
</tbody>
</table>
The second empirical fact (observed by Bolinger 1974: 77 and Mair 1990: 190, but more extensively documented in the present article) is that though *be* is the dominant verb in all infinitival complements with verbs of the *believe* class, irrespective of voice, passive matrices are much more tolerant of lexical verbs.\(^2\) On the whole, almost a fifth of all passive matrices are followed by verbs other than *be* or (perfective or possessive) *have* (see Tables 2 and 3), whereas after an active matrix the lexical option often does not seem to be available at all (Table 4), and most active matrices that do allow complements containing lexical verbs, do so less frequently.

\(^2\) For the traditional historical explanation of the dominance of *be* — the insertion of a verb between an object and an object complement — see Warner (1982: 148). A more intricate account, invoking a change in word order from Old English SOV to Middle English SVO, is provided by Fischer (1987).
than their passive counterparts (Table 5). Sentences like those in the [a] examples in (7)-(12) are therefore more likely to occur than those similar to the [b] examples.

(7) a. One species, perfectly good to eat, looks like another that is in some way nasty, and is assumed to derive some protection against predators thereby. (B7C 854)
   b. He had never assumed her to possess a quality of mind like his own, a shared humour, interests in whatever interested him; but that did not matter in a wife. (CD2 768)

(8) a. No-one really knows the mechanisms which cause women to live longer than men, but the clues are generally considered to lie in our hormones. (ARJ 718)
   b. Human beings generally consider life to function best when that ratio of male to female is relatively even. (B76 1746)

(9) a. Fish oil supplements have also been found to help people suffering from psoriasis, arthritis and SLE — a disease which causes skin rashes and joint pains. (A7P 696)
   b. Moores, Weiss and Goodwin (1973) similarly found comprehension to increase from 61 per cent to 71 per cent with the addition of signing. (CLH 1505)

(10) a. The Coopers and Lybrand report is believed to detail a highly complex fraud involving a string of bogus subcontractors and front companies to maintain the fiction of large contracts in Pakistan, China and Africa. (A2H 283)
   b. Abrams believed neighbouring to hang on a dilemma which those who live near to each other have between the need for support in times of crisis and the need for privacy. (CS7 434)

(11) a. There is also strong evidence that we should increase the proportion of mono-unsaturated fats, as these have been shown to raise the level of HDL cholesterol (see Heart Disease — the risks) in the blood. (A70 1442)
   b. Laboratory tests have shown vinclozolin to cause birth defects and other reproductive abnormalities in animals. (J2U 26)

(12) a. Virtually all competition now takes place on mats, since hard floors are known to present a hazard to the falling competitor. (A0M 27)
   b. Tiny natives in their feathered headdresses and skirts besported themselves on the water’s edge, far more ostentatiously than Kit knew them to do. (G0S 905)

Table 2 offers an approximation of the proportion of lexical verbs in infinitival complements following passive matrices. The basis for it was an automatic BNC query for past participle forms immediately followed by the infinitive marker to. The second column specifies how many tokens were manually checked for occurrences of lexical infinitives. When there were less than 1,000 tokens, all tokens were checked. When there were more, only the first 1,000 occurrences were checked (the first 300 in the case of suppose, because here the high proportion of lexical infinitives showed up immediately).
Table 2: Proportion of lexical infinitives to the number of manually checked occurrences of the *Ved to* pattern

<table>
<thead>
<tr>
<th>verb</th>
<th>n Ved to checked</th>
<th>n lexical</th>
<th>% lexical</th>
</tr>
</thead>
<tbody>
<tr>
<td>suppose</td>
<td>300</td>
<td>159</td>
<td>53.00</td>
</tr>
<tr>
<td>know</td>
<td>1000</td>
<td>443</td>
<td>44.30</td>
</tr>
<tr>
<td>show</td>
<td>1000</td>
<td>349</td>
<td>34.90</td>
</tr>
<tr>
<td>estimate</td>
<td>491</td>
<td>164</td>
<td>33.40</td>
</tr>
<tr>
<td>assume</td>
<td>655</td>
<td>152</td>
<td>23.21</td>
</tr>
<tr>
<td>presume</td>
<td>148</td>
<td>32</td>
<td>21.62</td>
</tr>
<tr>
<td>find</td>
<td>1000</td>
<td>209</td>
<td>20.90</td>
</tr>
<tr>
<td>hold</td>
<td>868</td>
<td>170</td>
<td>19.59</td>
</tr>
<tr>
<td>say</td>
<td>1000</td>
<td>195</td>
<td>19.50</td>
</tr>
<tr>
<td>think</td>
<td>1000</td>
<td>190</td>
<td>19.00</td>
</tr>
<tr>
<td>take</td>
<td>1000</td>
<td>187</td>
<td>18.70</td>
</tr>
<tr>
<td>repute</td>
<td>230</td>
<td>41</td>
<td>17.83</td>
</tr>
<tr>
<td>deem</td>
<td>494</td>
<td>86</td>
<td>17.41</td>
</tr>
<tr>
<td>understand</td>
<td>368</td>
<td>64</td>
<td>17.39</td>
</tr>
<tr>
<td>imagine</td>
<td>25</td>
<td>4</td>
<td>16.00</td>
</tr>
<tr>
<td>believe</td>
<td>1000</td>
<td>154</td>
<td>15.40</td>
</tr>
<tr>
<td>feel</td>
<td>388</td>
<td>56</td>
<td>14.43</td>
</tr>
<tr>
<td>reckon</td>
<td>160</td>
<td>23</td>
<td>14.38</td>
</tr>
<tr>
<td>consider</td>
<td>1000</td>
<td>101</td>
<td>10.10</td>
</tr>
<tr>
<td>allege</td>
<td>286</td>
<td>24</td>
<td>8.39</td>
</tr>
<tr>
<td>rumour</td>
<td>127</td>
<td>10</td>
<td>7.87</td>
</tr>
<tr>
<td>report</td>
<td>1000</td>
<td>71</td>
<td>7.10</td>
</tr>
<tr>
<td>declare</td>
<td>75</td>
<td>5</td>
<td>6.67</td>
</tr>
<tr>
<td>judge</td>
<td>161</td>
<td>10</td>
<td>6.21</td>
</tr>
<tr>
<td>prove</td>
<td>1000</td>
<td>22</td>
<td>2.20</td>
</tr>
</tbody>
</table>

TOTAL 14776 2921 19.77

AVERAGE 18.78

MEDIAN 17.41

Table 3 offers approximative evidence of the same fact, but approached from the other end. It displays the results of an automatic query for non-lexical infinitives. The second column specifies the number of tokens found by a BNC query for past participle forms immediately followed by the infinitive marker *to*, the third column the number of tokens produced by a query for past participle forms immediately followed by *to* that were immediately followed by either *be* or *have*. The fact that the percentages in the last columns of Tables 2 and 3 do not precisely add up to 100 has to do with the fact that (most of) the percentages in Table 2 were not calculated on the basis of all occurrences of the *Ved to* pattern, and, more importantly, with the fact that the query for this pattern also produced purposive infinitives and, though *to* was specified as an infinitive marker in the query, even prepositional phrases. These
irrelevant tokens were manually filtered out of the data presented in Table 2. On the whole, however, the data presented in both tables are corroborative of each other.

Table 3: Proportion of non-lexical infinitives to the number of occurrences of the *Ved to* pattern, listed from high to low (automatic query)

<table>
<thead>
<tr>
<th>verb</th>
<th>n <em>Ved to</em></th>
<th>n <em>be/have</em></th>
<th>% <em>be/have</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>prove</td>
<td>1103</td>
<td>1058</td>
<td>95.92</td>
</tr>
<tr>
<td>rumour</td>
<td>127</td>
<td>117</td>
<td>92.13</td>
</tr>
<tr>
<td>declare</td>
<td>75</td>
<td>69</td>
<td>92.00</td>
</tr>
<tr>
<td>allege</td>
<td>286</td>
<td>262</td>
<td>91.61</td>
</tr>
<tr>
<td>judge</td>
<td>161</td>
<td>147</td>
<td>91.30</td>
</tr>
<tr>
<td>report</td>
<td>1269</td>
<td>1140</td>
<td>89.83</td>
</tr>
<tr>
<td>consider</td>
<td>1412</td>
<td>1229</td>
<td>87.04</td>
</tr>
<tr>
<td>believe</td>
<td>1794</td>
<td>1542</td>
<td>85.95</td>
</tr>
<tr>
<td>imagine</td>
<td>25</td>
<td>21</td>
<td>84.00</td>
</tr>
<tr>
<td>repute</td>
<td>230</td>
<td>189</td>
<td>82.17</td>
</tr>
<tr>
<td>deem</td>
<td>494</td>
<td>395</td>
<td>79.96</td>
</tr>
<tr>
<td>feel</td>
<td>388</td>
<td>308</td>
<td>79.38</td>
</tr>
<tr>
<td>assume</td>
<td>655</td>
<td>497</td>
<td>75.88</td>
</tr>
<tr>
<td>understand</td>
<td>368</td>
<td>278</td>
<td>75.54</td>
</tr>
<tr>
<td>say</td>
<td>4506</td>
<td>3366</td>
<td>74.70</td>
</tr>
<tr>
<td>suppose</td>
<td>2499</td>
<td>1268</td>
<td>46.28</td>
</tr>
<tr>
<td>think</td>
<td>2740</td>
<td>1980</td>
<td>72.26</td>
</tr>
<tr>
<td>find</td>
<td>2006</td>
<td>1404</td>
<td>69.99</td>
</tr>
<tr>
<td>presume</td>
<td>148</td>
<td>102</td>
<td>68.92</td>
</tr>
<tr>
<td>estimate</td>
<td>491</td>
<td>326</td>
<td>66.40</td>
</tr>
<tr>
<td>show</td>
<td>1126</td>
<td>716</td>
<td>63.59</td>
</tr>
<tr>
<td>hold</td>
<td>868</td>
<td>503</td>
<td>57.95</td>
</tr>
<tr>
<td>know</td>
<td>1718</td>
<td>974</td>
<td>56.69</td>
</tr>
<tr>
<td>reckon</td>
<td>160</td>
<td>87</td>
<td>54.38</td>
</tr>
<tr>
<td>take</td>
<td>1731</td>
<td>288</td>
<td>16.64</td>
</tr>
</tbody>
</table>

**TOTAL** | 26380 | 18266 | 69.24
**AVERAGE** | 74.02
**MEDIAN** | 75.88

Table 4 displays evidence of the proportion of lexical to non-lexical infinitives with active matrices. It is based on a BNC query for the base form, the *s*-form, the *ing*-form and the preterite and/or past participle form of the verbs followed by any word, in turn followed by the infinitive marker *to*, i.e. on a search for active matrices whose infinitival complements have one-place subjects. The results of this query were checked manually for occurrences of *be/have* infinitives (column 2) and lexical infinitives (column 3).
Table 4: Proportion of lexical to non-lexical infinitives with active matrices (listed in descending order for the lexical verbs)

<table>
<thead>
<tr>
<th>verb</th>
<th>n be/have</th>
<th>n lexical</th>
<th>% be/have</th>
<th>% lexical</th>
</tr>
</thead>
<tbody>
<tr>
<td>say</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>repute</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>rumour</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>understand</td>
<td>23</td>
<td>17</td>
<td>57.50</td>
<td>42.50</td>
</tr>
<tr>
<td>take</td>
<td>82</td>
<td>43</td>
<td>65.60</td>
<td>34.40</td>
</tr>
<tr>
<td>presume</td>
<td>2</td>
<td>1</td>
<td>66.67</td>
<td>33.33</td>
</tr>
<tr>
<td>suppose</td>
<td>48</td>
<td>12</td>
<td>80.00</td>
<td>20.00</td>
</tr>
<tr>
<td>know</td>
<td>171</td>
<td>27</td>
<td>86.36</td>
<td>13.64</td>
</tr>
<tr>
<td>deem</td>
<td>15</td>
<td>1</td>
<td>93.75</td>
<td>6.25</td>
</tr>
<tr>
<td>assume</td>
<td>56</td>
<td>3</td>
<td>94.92</td>
<td>5.08</td>
</tr>
<tr>
<td>find</td>
<td>189</td>
<td>10</td>
<td>94.97</td>
<td>5.03</td>
</tr>
<tr>
<td>believe</td>
<td>426</td>
<td>13</td>
<td>97.04</td>
<td>2.96</td>
</tr>
<tr>
<td>show</td>
<td>255</td>
<td>7</td>
<td>97.33</td>
<td>2.67</td>
</tr>
<tr>
<td>prove</td>
<td>78</td>
<td>2</td>
<td>97.50</td>
<td>2.50</td>
</tr>
<tr>
<td>imagine</td>
<td>55</td>
<td>1</td>
<td>98.21</td>
<td>1.79</td>
</tr>
<tr>
<td>consider</td>
<td>298</td>
<td>3</td>
<td>99.00</td>
<td>1.00</td>
</tr>
<tr>
<td>feel</td>
<td>145</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
</tr>
<tr>
<td>declare</td>
<td>86</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
</tr>
<tr>
<td>think</td>
<td>65</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
</tr>
<tr>
<td>judge</td>
<td>28</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
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<tr>
<td>hold</td>
<td>27</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
</tr>
<tr>
<td>reckon</td>
<td>10</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
</tr>
<tr>
<td>estimate</td>
<td>9</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
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<tr>
<td>report</td>
<td>3</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
</tr>
<tr>
<td>allege</td>
<td>2</td>
<td>0</td>
<td>100.00</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2073</td>
<td>140</td>
<td>93.67</td>
<td>6.33</td>
</tr>
<tr>
<td>AVERAGE</td>
<td></td>
<td></td>
<td>92.22</td>
<td>7.78</td>
</tr>
<tr>
<td>MEDIAN</td>
<td></td>
<td></td>
<td>97.86</td>
<td>2.14</td>
</tr>
</tbody>
</table>

Table 5, finally, compares the occurrence of lexical verbs after active and passive matrices. The percentages in it (taken from Tables 2 and 4) should be approached with caution, however. For instance, one third of all infinitives occurring after active presume is a lexical verb, but this amounts to only one case out of a total of three. The high percentages of lexical verbs with active take and understand can be attributed to the collocations take/understand [something] to mean, as in However, she fell asleep at last, and Breeze took this to mean that the burn must be less serious than it appeared (BMU 1713) and Theodora understood this to mean no (HA2 1311).
Table 5: Comparison of the percentages of lexical verbs after active and passive matrices (listed in descending order for the passives)

<table>
<thead>
<tr>
<th>verb</th>
<th>active matrix</th>
<th>passive matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>suppose</td>
<td>20.00</td>
<td>53.00</td>
</tr>
<tr>
<td>know</td>
<td>13.64</td>
<td>44.30</td>
</tr>
<tr>
<td>show</td>
<td>2.67</td>
<td>34.90</td>
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<tr>
<td>estimate</td>
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<td>33.40</td>
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<td>assume</td>
<td>5.08</td>
<td>23.21</td>
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<td>presume</td>
<td>33.33</td>
<td>21.62</td>
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<td>find</td>
<td>5.03</td>
<td>20.90</td>
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<td>hold</td>
<td>-</td>
<td>19.59</td>
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<tr>
<td>say</td>
<td>-</td>
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<tr>
<td>think</td>
<td>-</td>
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<td>take</td>
<td>34.40</td>
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<td>repute</td>
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<td>17.83</td>
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<tr>
<td>deem</td>
<td>6.25</td>
<td>17.41</td>
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<tr>
<td>understand</td>
<td>42.50</td>
<td>17.39</td>
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<td>1.79</td>
<td>16.00</td>
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<td>believe</td>
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<td>15.40</td>
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<td>feel</td>
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<td>allege</td>
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<td>rumour</td>
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<td>report</td>
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<td>7.10</td>
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<tr>
<td>declare</td>
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<tr>
<td>judge</td>
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<td>6.21</td>
</tr>
<tr>
<td>prove</td>
<td>2.50</td>
<td>2.20</td>
</tr>
</tbody>
</table>

2. Connecting the two facts

As I have argued elsewhere (Noël 1998b), the lopsided proportion of passive to active matrices can partly be explained by the fact that the subjects of infinitival complements usually have a ‘given’ referent (Noël 1997, 1998a), which leads to redundancy in referential continuity when they are preceded by an active matrix — whose subject is normally given as well — and which often puts them in competition with the subjects of the active matrix clauses for ‘topic/theme’ status, and hence for
(13) a. Ralph Berger assessed the effects of meaningful verbal stimuli on dreaming. These stimuli were the names of friends provided by the subject, which, when presented while the subjects were awake, had elicited the largest galvanic skin responses (GSRs). Dream incorporation was judged to have taken place on about half the occasions. Of the 48 dreams which were judged to have been affected by the stimulus, there were 31 incorporations on the basis of assonance alone — for instance “Gillian” was represented as “Chilean”, “Jenny” as “Jemmy”, and “Mike” as “like”. (EVA 892)

b. Berger judged dream incorporation to have taken place on about half the occasions. Of the 48 dreams which he judged to have been affected by the stimulus, there were 31 incorporations on the basis of assonance alone...

In extract (14), a paragraph on the Roman sculptor Pasiteles, Pasiteles is (part of) the topic/theme of every sentence (apart from the first), which sequence a sentence like [b] with an active matrix would disrupt.

(14) a. It was not uncommon for craftsmen to excel in a variety of media. Pasiteles was a famous sculptor of the first century BC who founded a school at Rome. He was probably a Greek from southern Italy. Pasiteles was skilled in working stone and bronze, but was especially talented at metalwork and at modelling from life. Works signed by members of his school survive, and indicate that Pasiteles and his pupils specialised in creating works in the “severe” style of early Classical Greece. Pasiteles is known to have made an ivory image of Jupiter for the temple of Jupiter in the complex of buildings developed by Metellus Macedonicus. His career was not without personal risk: the sculptor was nearly mauled in the dockyards at Puteoli while drawing caged animals destined for the arena. (AR4 202)

b. Art historians know Pasiteles to have made an ivory image of Jupiter for the temple of Jupiter in the complex of buildings developed by Metellus Macedonicus.

However, as I have suggested before (Noël 1998b: 1053), information and thematic structure might not constitute the whole picture. Unlike their active counterparts, the passive matrices of the [a] sentences in (1) to (12) seem to carry an evidential meaning (in the sense of Chafe and Nichols, eds., 1986), and I would like to suggest that

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3 This information/thematic structural factor helps to explain Warner’s (1982: 142) observation that already in late Middle English “NP fronting” has a favourable influence on the employment of infinitival complements after “verbs of knowing, thinking and declaring”.

4 Bolinger (1974: 77-78) seems to have had comparable intuitions on the passive construction’s “effectiveness for topicalization”, but did not relate this to the typical information structure of the active construction.
the higher frequency of passive matrices could also be a concomitant of a grammaticalization process which is turning them into a sort of function words. For the relation between frequency of occurrence and grammaticalization is clearly two-directional: on the one hand, frequency is a necessary condition for grammaticalization to take place (Traugott and Heine 1991: 9), but as function words are used more frequently than content words, greater frequency is also an effect of grammaticalization (Lehmann 1995[1982]: 142; Thompson and Mulac 1991: 319; Bybee et al. 1994: 8; Tabor and Traugott 1998: 229). This article will explore whether indeed these passive matrices have become true evidentials. For this it will not be enough to establish that they can have an evidential function, loosely defined as the expression of the kind of evidence a person has for making factual claims (Anderson 1986: 273), which perhaps few will deny (more on this, though, in section 3). For them to be true or “archetypal” evidentials they must have gone through a process of grammaticalization (Anderson 1986: 276). The fact that they tend to combine with lexical verbs may be an indication that they have (I will return to this in section 4).

3. The evidential meaning of the passive matrices of infinitival complements

Though isolated instances of the BE Ved to pattern have been mentioned before in connection with evidentiality — for instance, in his taxonomy of evidential phenomena Chafe (1986: 268) uses examples of be said to and be supposed to as illustrations of “hearsay evidence” — the claim put forward in this article is that the pattern as such, irrespective of which believe-type verb fills it, can at least have an evidential meaning. Whether all representatives of the pattern have also grammaticalized into true evidentials is a different matter, which I will turn to in section 5, but let me first illustrate the weaker claim that the pattern has evidential potential. Here is one example of an infinitive with a passive matrix (the [a] sentences), and one of the active pattern (the [b] sentences) if it occurs, for each of the verbs in Table 1 with more than a hundred occurrences with infinitival complements.

(15) a. VITALITE Light is a sunflower oil spread which is said to be high in polyunsaturated fat, and low in saturated fat and cholesterol. (A0C 1131)
(16) a. For older people just over half the refusals for grants are reported to be because the basic criteria are not satisfied. (A10 898)
   b. On 4 April two officers reported the River Spey to be “low and fordable in ... many places” and by 12 April, after being joined by the forces from Strathbogie, Cumberland’s army reached the river, where the water level had dropped significantly in the preceding few days. (BNB 780)
(17) a. Several of the main fugitives from the present Colombian crackdown on the drugs industry are alleged to be sheltering in Panamanian safe-houses. (A2J 266)
   b. It is certainly not unreasonable to refuse to give up a bank note which you pick up in the street to the first stranger who alleges it to be his, if you tell him that you must make further inquiries or that he must produce evidence which will authenticate his claim. (FSS 753)
(18)a. From the heights of Foel-cwmcerwyn, just to the east, you are supposed to be able to see Exmoor, Snowdonia and the Wicklow Mountains in Ireland. (A65 757)
b. Traditional readings of the Shipman's Tale, however, suppose the husband to be a, or even the, target figure, and not without reason. (HXS 820)

(19)a. The study's thought to be the first of its kind in Britain and shows a generally positive response to conditions in the county's fifteen council run homes. (KRT 5384)
b. I had always thought him to be egotistical and attention-seeking; but apart from mentioning his invitation to the Dukakis Inaugural, he answered modestly, even humbly: praising his friend's work and disparaging his own. (AE0 2777)

(20)a. Free movement of capital may well reinforce these effects because capital movements are deemed to be mainly determined by technological and market operation reasons, rather than by simple rate of return calculations. (HXK 363)
b. The mind puts together certain things and deems them to be of the same kind. (A0T 54)

(21)a. The upper critical field was estimated to be about 800,000 times stronger than the earth's magnetic field, advantageous for applications of the superconductor. (A19 150)
b. The Press had estimated Mallik himself to be somewhere in his forties when he was executed, although no evidence of his birth date had been discovered. (FPA 826)

(22)a. Several reasons can be put forward for this gap, but the single largest factor is presumed to be the date coverage of the databases. (HJ9 1433)
b. I presumed the countless minor mishaps to be part of any climber's learning process. (ECH 246)

(23)a. Dutch insurers are reckoned to be the boldest European investors in private placements, but are now proceeding cautiously. (ABJ 2573)
b. Evelyn reckoned him to be about twenty-six if you allowed for the drink. (AEB 966)

(24)a. The virtual absence of L1 producing cells beneath the follicle associated epithelium in Peyer's patches may induce the immunostimulatory function of these macrophage rich structures, which are held to be crucial for induction of specific mucosal immunity. (HU2 3230)
b. His contempt for her had been occasioned, as Ellie understood it, by her father's disdain for Madame's previous occupation as an actress, since, as he said, he had always held the theatre to be nothing but a den of iniquity. (EEW 1954)

(25)a. The Bank of England is understood to be keeping a watch as discussions continue between Eurotunnel and its four agent banks, which include the Midland and National Westminster. (A26 487)
b. Just like anybody else, they have understood science to be a process of investigation, and religion a matter of faith. (CAJ 1358)

(26)a. Pakistan's military intelligence service, the ISI, which is assumed to be directing the attack, has lost face. (HSF 1557)
b. The chances are that if you are told a nasty tale about the sexual misdemeanours of a headmaster, a vicar, a scout leader, a member of Parliament, a public performer or a novelist then you will assume it to be the truth. (ADA 515)

(27)a. The analyses that were constructed for these frescos were found to be useful in the examination of more famous works. (ALV 125)
b. Monitoring motor activity in newborn babies, Dr McGuinness found boys to be significantly more active, spending less time asleep and performing more facial grimaces than girls. (HH3 8823)

(28)a. Overall 19.1% were judged to be infected at the time of the survey, namely 9.9% community-acquired, i.e. present on admission, and 9.2% hospital-acquired, i.e. infection-free on admission and contracted infection as a direct result of hospitalisation. (B14 976)
b. The aim is to produce a grammar that generates all of those sentences — and only those sentences — that a native speaker judges to be well-formed. (HGR 496)

(29)a. Transcription of the exogenous sequences was shown to be alpha-amanitin resistant, which indicates that the procyclin/PARP promoter was active. (K5X 434)
b. This notion of a criterion could be used to show the argument from analogy to be unnecessary. (F9K 1220)

(30)a. Waiting lists are known to be an inaccurate indicator of need, as many doctors do not refer patients if they know the wait will be long (this is as true for instance for hearing aids as it is for hip replacements). (A10 1333)
b. One of the hardest things for women to bear is the way men reject tears as silly and irrelevant, when they know them to be important and valuable. (G0T 79)

(31)a. The town centre, west of the Windrush river, was first laid out by the Bishop of Winchester in the early 13th century, and is considered to be a fine example of medieval town planning. (AAY 386)
b. Whitehouse considered moral order to be synonymous with Christian moral principles, and therefore any attack on the former was perceived as being an attack on the latter. (CRU 625)

(32)a. Oxford publishing millionaire, Robert Maxwell, is believed to be willing to make houses he’s bought on the Botley Road available for homeless families. (KRT 5429)
b. Something cat lovers will find irresistible — for surely all proud owners believe their cat to be ultra intelligent — is Melissa Miller’s Definitive I.Q. Test for Cats (Signet, £3.99), which includes a couple of tests for the owners too. (CBC 9960)

(33)a. It is true that God is not yet totally banished from his creation, but having made it and all that is in it, rather like a watchmaker constructs a timepiece, he is felt to be no longer necessary to explain the inner workings of the mechanism. (CCE 908)
b. The schools close because of depopulation, and people move away, if they can, if they feel the existing educational provision to be unsatisfactory. (ALE 179)
(34) a. Improvements in performance with increasing arousal at low levels are taken to be a function of the increasing speed on information transfer. (HPM 394)
b. Many readers take the moral to be the last two lines of the poem, which seem to mean “Be kind to animals”. (CAW 1033)

(35) a. Pure alcohol, by in situ tissue fixation and arterial compression, which causes arterial coagulation and tissue injury, is proved to be the most efficacious sclerosing agent in the arrest of arterial bleeding. (HU3 5833)
b. Later events proved this “understanding” to be a smokescreen of Göring’s invention. (BN2 1306)

(36) a. Ciriaco De Mita, a former prime minister of Italy and once leader of the Christian Democrats, was declared to be under investigation for alleged extortion as probes into corruption continue. (CRC 3391)
b. It becomes evident that Julian is a representative figure of the writer when he decides to write a novel (82), and Decibel that of the oral media when she declares writing to be her natural enemy (186). (G1N 1585)

(37) a. Two types of chain motion can be envisaged, a conformational change taking place within the confines of the tube, and more importantly, reptation. The latter is imagined to be a snake-like movement that translates the chain through the tube and allows it to escape at the tube ends. (HRG 1199)
b. I had imagined the cleaning to be a routine trundle and the retouching a source of joy, but apparently it’s vice versa and tête-bêche. (EDJ 2538)

It is my contention that in all the [a] sentences above the \(\texttt{BE} \) \text{V} \text{ed to} pattern constitutes a subjective intrusion by the speaker/writer (in the sense of Traugott 1995) to give his/her statement a semblance of objectivity (cf. Halliday’s 1994: 355 “explicit objective modalization”), i.e. they signal that the speaker/writer of the sentences is not the (sole) judge of the factuality of his/her statement by calling in an unspecified source, from whose implied existence the relative factuality of the statement can be inferred. As such, they come very close to being probability or “epistemic necessity” markers (see van der Auwera and Plungian 1998: 85-86 on the semantic relation between necessity and evidentiality; Willett 1988: 52-56 for an overview of the treatment of evidentiality in linguistic theory as either part of or distinct from epistemic modality or epistemology; and also Ramat 1996: 289-290 on the relation between “epistemic” and “inferential” markers and markers of evidentiality). Some instantiations of the pattern imply greater factuality (‘this is certainly true’) than others (ranging from non-commitment to dissociation). \(\texttt{BE} \) \text{shown to} and \(\texttt{BE} \) \text{proved to}, for instance, which are often used in scientific texts (as in (29a) and (35a)), imply greater commitment on the part of the speaker/writer as to the truth of his/her statement than, say, \(\texttt{BE} \) \text{said to} or \(\texttt{BE} \) \text{reported to}, more often used in journalistic texts (as in (15a) and (16a)), and a form like \(\texttt{BE} \) \text{imagined to} may cast doubt on the truth of the statement it modifies (e.g. (37a)).\footnote{\texttt{BE} is bracketed to cover cases like A fourth man, said to have provided the bomb, has added that they had nothing to do with it (A1G 206), On Sept. 22, Saudi Arabia confirmed that an undisclosed number (reported to be around 20) of Jordanian diplomats had been expelled for security reasons (HKY 1713) and A taped conversation, alleged to implicate}
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common, however, is that they specify “the kind of justification for a factual claim which is available to the person making the claim”, and as such they conform to the first part at least of Anderson’s (1986: 274) four-part definition of evidentials, reproduced here as (38). 6

(38) a. Evidentials show the kind of justification for a factual claim which is available to the person making the claim, whether
direct evidence plus observation (no inference needed)
evidence plus inference
inference (evidence unspecified)
reasoned expectation from logic and other facts
and whether the evidence is auditory, or visual, etc.
b. Evidentials are not themselves the main predication of the clause, but are rather a specification added to a factual claim ABOUT SOMETHING ELSE.
c. Evidentials have the indication of evidence as in (a) as their primary meaning, not only as a pragmatic inference.
d. Morphologically, evidentials are inflections, clitics, or other free syntactic elements (not compounds or derivational forms).

To continue the semantic characterization of the (BE) V ed to pattern let’s consider part [b] of this definition. Postal’s verbs, listed in Table 1, are all verbs of the kind Francis, Hunston and Manning (1996: 295) describe as being “concerned with thinking, saying, or showing something”. Levin (1993: 182) calls them “Declare verbs”. Givón (e.g., 1993: 3) would characterize some of them as “cognition” and others as “utterance” verbs, and Halliday (1994: 118, 140) some as the “cognition” sub-type of “mental process” verbs, and others as “verbal process” verbs. In the passive [a] sentences above, however, these verbs do not express their prototypical meaning that someone has said, thought or showed something. Not only is there no reference to a sayer, thinker or shower, but the sentences are not about saying, thinking or showing to start with. They are in essence factual statements about something else. 7 In other words, the verbs in these (BE) V ed to patterns have lost much of their verbal or processual meaning. In Grammaticalization Theory terms, there has been a decrease

Roderick Newall, 27, was ruled inadmissible at an extradition hearing in Gibraltar yesterday (CEM 1978), where the passives are part of adnominal clauses without a relative pronoun in which BE is elided.

6 Willett (1988: 84) calls it the best working definition he has seen of what a true (grammaticalized) evidential is.

7 This, too, was observed by Bolinger (1974: 78), who formulated it thus: “the most important effect of the passive is the one that is complementary to shifting the focus onto the subject of the subordinate verb (complementary, that is, to the topicalization), namely, the shifting of the focus away from the main subject and the main verb. It is no longer important who does the believing or supposing and the believing or supposing itself becomes ancillary to the subordinate proposition.” Bolinger called this shifting away of the focus from the matrix clause “adverbialization”, “a broad-gauge lexical process which at the extreme end produces formal adverbs” like supposedly and allegedly (1974: 79). A few pages on he even uses the auxiliary word: “The conceptual passive is […] one of many kinds of subordinating adverbializations, tending in the direction of auxiliary status” (1974: 82). Others who have pointed out the resemblance to auxiliaries are Mair (1990: 115) and Meyer (1997: 156-157).
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in their “semantic integrity”, they have “desemanticized” (Lehmann 1995: 126-127),
their processual meaning has been “bleached out” (Givón 1975), there has been “se-
mantic reduction” (Bybee et al. 1994: 6), ...

Note that when I say that there is no reference to a sayer, thinker or shower, I do not
mean “in these sentences” — of course not, they are “agentless” passives. I am
saying that in the discourse context of these sentences such participants are either
simply not present or their topicality/thematic value is very low. For reasons of space
it is impossible to give many contextualized examples, but here are two typical
instances:
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(39) East Germany accuses Bonn over refugees
From EDWARD LUCAS in Prague and PATRICIA CLOUGH in Bonn
AS SOME 3,000 East German would-be emigrants poured into West Germany's embassy in Prague yesterday, the East Germans, apparently furious at the latest development, accused West Germany of "gross breach of trust", claiming that Bonn had promised to stop the flow. [...] As news of the exodus spread, more East Germans, who were already in Prague, made their way to the embassy yesterday. At one point more than 100 an hour were entering the embassy. Police tried to pull away refugees climbing over the embassy's back fence last night, but they moved aside when the West German ambassador, Hermann Huber, appeared in the garden and said: "Let them go!" Members of a group attempting to reach the embassy the night before said policemen had hit them with rubber truncheons and turned them back. As dawn broke yesterday, the same group, this time led by a mother with a baby in arms, faced down the police patrols and reached the embassy successfully. On Sunday West Germany had complained about the police presence around its embassy, and the slackening of restrictions is thought to have reflected an apparent Czechoslovak desire to remain as far as possible on good terms with both Germanies. (A2F 13)

(40) So much for the "how" of hooliganism but what of the "why"? Even taking an ethologist's view that young men are fighting animals who need to work off aggression harmlessly in play — a sweeping and contentious assumption — we still have to account for the specific form of football hooliganism since the 1960s. Why was group identity expressed in this rather than in some other way? What social meanings, if any, can be detected in the synchronized clapping and threats aggression? Hooligan behaviour is more elaborate than one might think. Oxford United fans, for example, were found to have a repertoire of over 250 carefully orchestrated chants ranging from "We're gonna win the league, tra la la la" to "You're gonna get your fuckin' heads kicked in" — the favoured greeting for visiting fans. (A6Y 975)

Readers of the last sentence of (39) will be hard-pressed to find a participant by whom something is thought, and though earlier on in the text from which (40) was extracted there might or might not be reference to researchers who have looked into the behaviour of Oxford United fans, these are certainly not topical/thematic participants at this point in the text.

When the passive matrices do contain an "agent" by-phrase, on the other hand, as in (41)-(45), the meaning of the matrix verb does belong to the main predication of the sentence, just as in the active [b] sentences above.

(41) THE STIFF plastic sheet in police officers' notebooks, said by some lawyers to be "a manoeuvre" to make testing for note-doctoring impossible, is to be withdrawn immediately. (AL6 165)

(42) There were no significant differences between the total, autonomic, and neuroglycopenic scores reported by subjects to be important to them at the
This action is brought by the mayor, aldermen, and citizens of the city of Manchester to recover damages from the defendant in respect of that which is alleged by them to be a libel on the corporation. (FBV 251)

We follow him in treating these aspects of the life course as a moral career, since they are concerned with a person's reputation, a kind of continuous summing up of his life in terms of what sort of person he is supposed by his fellows to be. (ECN 341)

The US citizen's historic right to bear arms, for example, is thought by most of them to be both outdated and counter-productive, yet it was taken by the founding fathers to be "self-evident", inherently the due of human beings. (CM8 920)

It is not easy to find evidence for the claim that agentless passive matrices are not part of the main predication of their sentences. Halliday (1994: 354), who under the heading of "grammatical metaphor" makes a similar claim about I think in sentences like I think it's going to rain, has adduced question tags as evidence, saying that the proper tag in this case is isn't it? rather than don't I? But it does not appear straightforward to transpose this test to our sentences. It is of little help when the infinitive is be, of course, and when it is a lexical verb, claims that a different tag is needed will only convince those who are sympathetic to the claim it is supposed to be in aid of anyway. If there are relevant examples in the BNC, I have not succeeded in extracting them. In principle, however, it should not be impossible to test the non-propositionality claim empirically. One could hypothesize, for instance, that when sentences of the type X is said to be Y are questioned with Is it?, most speakers would interpret the question to pertain to the proposition 'X is Y', and not to a reconstructable proposition like 'A says Z' in which Z is 'X is Y'. One could also hypothesize that the question By whom? would be considered by most speakers to be a non-cooperative, if not downright subversive, question. However, the setting up of experiments with a view to testing such hypotheses in a scientifically sound fashion sadly falls outside the expertise of the present author, who would also prefer not to stoop to statements introduced by "native speakers agree that...".

Still, there might be a third source of empirical evidence, next to monolingual corpora and informant testing. Another way into language users' intuitions on the matter may be offered by translation corpora: how do translators handle these matrices? Translators' target language choices are indeed revelatory of their interpretation of source language items, and if there is consistency in these choices/interpretations, they may be considered to be indicative of the nature of the interpreted items (Noël 1999). For instance, Dutch does not share the infinitival pattern with English, and in French it is (still) rather rare (Veland 1998), which makes congruent translations either impossible (in the case of Dutch) or unlikely (in the case of French). So how is the pattern translated into these languages? It appears that such matrices are often either left untranslated (as in (46) and (47)), or that they are translated by elements that have an unmistakeable evidential nature (as in (48).
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and (49)), both options corroborating my claim (see Noël 1999 for details of a systematic investigation into this).8 9

(46) a. For a time two manservants looked after her, two brothers who used to help out in the kitchen now and then, twins, each weighing well over two hundred pounds. But Mother Superior put a stop to it soon afterward because they were found to be unchaste. (FEED:52:01)

b. Een tijdje lang is zij verzorgd geweest door twee knechts, die af en toe in de keuken hielpen, twee broers, een tweeling van elk boven de honderd kilo. Maar dat heeft Moeder-Overste verboden na een tijdje omdat die twee onkuisaards waren. (FEND:52:01)

‘... because those two were lechers.’

c. Pendant un petit temps, elle a été soignée par deux valets, qui aidaient parfois à la cuisine, des jumeaux de plus de cent kilos. Mais Mère Supérieure a interdit ça après un temps parce qu’ils étaient des impudiques. (FEFD:52:01)

‘... because they were lechers.’

(47) a. Some artificial noises, especially those which emanate from continuous-frequency engines, have been found to have a pathological effect on the body’s cellular structure, and can sometimes cause cancer, while natural sounds, like those of waves, the warbling of birds and certain types of classical or African music, can create a sense of well-being and even a healing effect by harmonizing with our biorhythms. (UBEG:10:01)

b. Sommige kunstmatige geluiden, meer bepaald die van motoren met een constante frequentie, tasten lichaamscellen aan en kunnen kankers veroorzaken. Natuurlijke geluiden (het ruisen van de zee, vogelgezang) en sommige vormen van klassieke of Afrikaanse muziek roepen een gevoel van welbehagen op. Ze hebben zelfs een genezend effect omdat ze met ons bioritme overeenstemmen. (UBNG:10:01)

‘Some artificial noises ... harm somatic cells ...’

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8 Examples (46) and (47) were selected from the results of a query for FIND in the trilingual (English, Dutch, French) TRIPTIC corpus compiled by Hans Paulussen, to whom I am grateful for supplying me with the data. For a description of the corpus, see Paulussen (1995). Examples (48) and (49) were selected from the results of a query for said to be in the online bilingual (English, Canadian French) Canadian Hansard corpus (http://www-rali.iro.umontreal.ca/TransSearch/).

9 An anonymous referee has suggested that the frog story research of Berman and Slobin (1994) could undermine this kind of evidence. However, this research has shown — among other things — that different languages use different kinds of form to express similar meanings, and this supports rather than undermines the use of the kind of evidence proposed here, since the whole point is that non-congruent rather than congruent translations are revelatory of the meaning of the translated items. If, on the other hand, the crux of our referee’s suggestion is that the Berman and Slobin research has demonstrated that meanings encoded by language A may be left unencoded in language B, and that this might account for the unmatched translations, then this is not applicable here, as evidenced by the occurrence of non-congruent translations. For further argumentation of how linguists can profit from parallel corpora, see Salkie (1999).
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c. Certains bruits artificiels, dont ceux de moteurs à fréquence continue, affectent les cellules du corps de manière pathologique, occasionnant parfois des cancers, tandis que les sons naturels (mer ou oiseaux, par exemple) et certaines musiques classiques ou noires, s'harmonisant avec les biorythmes internes, favorisent le bien-être et la guérison. (UBFG:10:01)

'Some artificial noises ... affect somatic cells in a pathological way ...'

(48) a. Tour organizers are said to be working hard to improve the show of the advance performance in Florida last week because the Prime Minister did not meet expectations when he met Mickey Mouse. (hans.34.03.132.234.rev)

b. Apparemment, les organisateurs de la tournée travaillent d'arrache-pied pour améliorer le spectacle, dont nous avons vu l'avant-première en Floride la semaine dernière, parce que la performance du premier ministre, lors de sa rencontre avec Mickey, a été décevante.

'Apparently, the organizers of the tour are working relentlessly ...'

(49) a. In the United States it is said to be a ticket to oblivion politically, and restraint is also said to be unpopular. (hans.34.02.131.026.rev)

b. Aux États-Unis, c'est le meilleur moyen pour un candidat politique de sombrer dans l'oubli, paraît-il, et l'austérité n'y serait pas populaire non plus.

'In the United States, it is the best way for a political candidate to sink into oblivion, it seems, and austerity measures would also be unpopular.'

For most verbs it is of course not difficult to find cases in which (agentless) passive matrices do form part of the main predication of their sentences (e.g. (50)-(52)). Does the existence of these “literal” uses exclude that the indication of evidence is the primary meaning of “non-literal” passives, reducing their meaning to a pragmatic inference (part [c] of Anderson’s definition)? Clearly not if evidence can be found that our “evidential” passives have turned into separate (grammaticalized) vocabulary items (see section 4), for according to grammaticalization theory grammaticalized forms can exist side by side with source forms (see, e.g., Hopper 1991: 28; Heine 1993: 87; Traugott 1995: 32). Moreover, literally-used passive matrices do not appear to be the unmarked cases frequency-wise, and usually they are part of irrealis constructions, whereas evidentials are normally used in assertions (Anderson 1986: 277; see also Givón 1982).

(50) On the other hand the needs and welfare of the child must be paramount and if a child is deemed to be in danger, or at any particular risk, the child must be removed. (J9L 319)

(51) A decision will not be held to be unlawful because it is “unreasonable” in the ordinary, non-legal sense. (A31 58)

(52) Marcellus says the condition on the manumission is not to be repeated in the case of the substitutes. (B2P 791)

Moreover, I would like to posit that the evidential reading is the default reading of passive matrices. For instance, note that, upon reading the [b] sentences in (53)-(55), one does not automatically connect the unexpressed “thinker” with the participant referred to by the active subject in the [a] sentences. Rather, one’s first interpretation
is likely to be that people in general are implicitly referred to, which is compatible with an evidential reading.

(53) a. The head of Northend claimed that he thought the self-appraisal to be the most important aspect of the exercise for the school. (HNW 204)
   b. The head of Northend claimed that the self-appraisal was thought to be the most important aspect of the exercise for the school.

(54) a. In the passages to which I have referred I understand Lord Reading C.J. to be predicating some measure of compulsion in addition to the unlawful demand before recovery is available. (FCL 809)
   b. In the passages to which I have referred Lord Reading C.J. is understood to be predicating some measure of compulsion...

(55) a. But first he ought to tell his friend of the danger he believed him to be in. (HR6 2669)
   b. But first he ought to tell his friend of the danger he was believed to be in.

We can conclude that, meaningwise, the BE Ved to pattern can at least be said to have an evidential use. The question that remains (important for part [c] of the definition) is whether any grammaticalization can be said to have taken, or to be taking, place. (The fourth part of Anderson’s definition, not devised with a language like English in mind anyway, poses no problem for our patterns.)

4. Are the passive matrices of infinitival complements evidentials?

As Anderson (1986: 274) points out, evidentials are a grammatical phenomenon and the noun form “evidentials” “does not simply include anything one might consider to have an evidential function”. For instance, for structures like the italicized elements in examples (56)-(58) to be deserving of the term evidential they must be the result of lexical/grammatical reanalyses of the related verbs hear, understand and have, which have turned these elements into new vocabulary items, with grammatical functions that differ from those of the original items. Evidence that such reanalysis has indeed taken place, says Anderson (1986: 276), is that though the speaker received the information in the past, the elements in italics contain no past tense markers.10

(56) I hear your husband was blackballed when he tried to join the Country Club. (A0D 1111)
(57) “I understand that a substantial part of his estate was left to Miss Morgan?” he enquired, with a strong feeling of throwing petrol on to a fire. (AB9 2552)
(58) I have it on good authority that someone living at Hempnall became very enamoured of a stray mink she found outside her house. (KAJ 1688)

10 I am sure Anderson uses the term ‘reanalysis’ in its loose, pre-theoretical, sense, not in the theoretical sense Haspelmath (1998) takes issue with.
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So the question now is: have the verbs of our passive matrices undergone a similar process and have (BE) said to, (BE) reported to, (BE) alleged to, (BE) thought to, etc. become separate vocabulary items? As I suggested in section 2, the fact that these passives behave differently from their active counterparts with respect to the kinds of infinitives they combine with might be an indication that such a process is under way and that these passives are no longer perceived as passive versions of the active pattern. The data presented in Tables 2 to 5 are evidence of the greater tolerance of passive matrices than active matrices for lexical infinitives (examples of lexical infinitives with both kinds of matrix are (7) to (12)). In addition — though this might just be the result of the higher frequency of lexical infinitives after passives — it is far easier to find infinitival complements containing dynamic verbs in combination with passives than with actives (examples with passives are (59) to (64); a clear example of a dynamic infinitive after an active matrix is (12a)).

(59) The 680 pastors that serve the region are said to preach to well-attended churches on Sundays. (AAB 132)
(60) The Mafia is supposed to make gigantic sums of money. (ABF 453)
(61) The magic ingredients in breastmilk which are thought to strike the germs responsible for causing urine infections, are a group of sugars, called oligosaccharides. (A70 689)
(62) During the rearing period, about one in 10 pairs were found to lose one parent, usually the male, through desertion or predation. (EFF 313)
(63) The massive violation of human rights around the world — some 90 countries are believed to practice torture — means that escape and exile is the only hope for many survivors of that oppression. (A7G 866)
(64) Not only are some birds known to detect infrasound, but one species has been shown to produce infrasonic calls. (FEV 1108)

The fact that some of these passives, most notably (BE) said to, simply do not have active counterparts (anymore) is supportive of a disruption of the link between the active and passive patterns, and could be considered to be indicative of a “bleaching out” of the process meaning of the verbs, the argument being that verbs which could at one time express a process in both the active and passive voice and can now do so only in the passive have lost much of their process meaning.

An earlier explanation for the greater versatility of passive matrices with respect to their infinitives (Mair 1990: 190), which attributed it to the information structural

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11 I have skipped be supposed to in running down the list of Table 1 because it has (also?) undergone a different grammaticalization into an expression of “participant-external necessity” (van der Auwera and Plungian 1998: 81, 96).
12 I have not seen evidence that passive matrices have always been more tolerant of lexical infinitives than actives. Indeed, there is no reason why passives should have a natural disposition to such tolerance. There is, however, historical evidence of a tendency in late Middle English to use a finite complement in lieu of an infinitive when the complement verb is other than be (Warner 1982: 143-144).
13 The last active example mentioned in the Oxford English Dictionary dates from the start of the 18th century (1706): It were great Malice, to say him to be a Man of no Principles.
advantage of infinitives with passive matrices over *that*-clauses, not offered by infinitives with active matrices (i.e. the fronting of the subject of the complement), is not in opposition to what is suggested here. It may very well be that writers/speakers have become more tolerant of lexical, and even dynamic, infinitives after passives because the advantages of the word order of this pattern are considered to be great enough to disrupt the tendency for infinitival complements to be non-lexical and stative, but the end result of this practice might still be that frequently-used representatives of the passive pattern have become auxiliary-like function words that can more easily combine with any kind of infinitive than do active matrices.

My claim is not, of course, that (*BE*) said to etc. behave like core members of the auxiliary word class of English from a syntactic point of view, but then neither do “quasi-auxiliaries” like *be going to* and *be able to*, and “auxiliariness” is best seen as a matter of degree anyway, i.e. as “auxiliariness” (Bolinger 1980; Heine 1993). Fact is that they can be argued to share quite a few of the properties that are often associated with auxiliaries. Running down the list provided by Heine (1993: 22ff.):

a. “Auxiliaries tend to provide expressions for a small range of notional domains, especially for the domains of tense, aspect, and modality”: As mentioned above, evidentiality comes very close to epistemic modality and is sometimes subsumed under it (for references, see van der Auwera and Plungian 1998: 85).

b. “They form a closed set of linguistic units”: The *believe* class of verbs has a huge membership, of course, but though I have claimed that the (*BE*) *V* ed to pattern can have an evidential meaning whichever *believe*-type verb fills it (section 3), I would not want to claim that all its instantiations are going through an auxiliation process to an equal extent. I have referred above to “frequently-used representatives” of the pattern, which I will clarify in section 5.

c. “They are neither clearly lexical nor clearly grammatical units”: Indeed, traditional members of the English auxiliary class and our passives alike do not score very high on any scale of grammaticalization, unlike, say, prepositions or affixes (more on this in section 5).

d. “They also occur as main verbs”: The distinction I have made above between evidential and “literal” uses of our passive matrices parallels that made by Heine (1993) between auxiliaries and “verbal” uses of the same form, as illustrated in (65) and (66) for *need* and *be going to* (auxiliaries in the [a] sentences, verbal uses in the [b] sentences).

(65) a. Aeroflot’s transatlantic flights still *need* to land at Shannon airport in Ireland to refuel because they cannot not carry enough fuel to complete the journey between New York and London. (AHU 177)

14 For a list of traditional criteria for English auxiliaries, see for instance Warner (1993: 3-13), and the references there.
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b. Today's family farmers and many of the part-time farmers were probably
tested with more pressures than their predecessors and might need assistance
to overcome them. (ALC 357)

(66) a. I'm going to conclude this chapter with what I know will be offensive to
some referees and judges; yet it is not only my opinion. (A0M 326)
b. Remember, it only costs £1 a class and all the money is going to a very worth-
thy cause, so why not enter as many different events as you can. (A17 1030)

e. “They express grammatical functions but exhibit, at least to some extent, a verbal
morphosyntax”: Like for instance need and be going to, our passive matrices have
both present and past tense forms.

(67) a. Coca-Cola is said to control around 80 per cent of the French cola market
and Pepsi is keen to strike back. (ATT 354)
b. The porcelain produced at Chelsea was said to compare with Dresden's fine
china and there was always keen competition amongst dealers who waited at
the doors to purchase pieces as soon as they emerged from the ovens. (ALU
284)

(68) a. Further work on MRDs includes Guo's [1989] attempts to build a machine
tractable dictionary (MTD) from the LDOCE, based on the fact that a set of
1,200 words (known as the Key Defining Vocabulary or KDV) is found to
define the 2,219 words of the core vocabulary of the LDOCE. (EES 597)
b. Men in Borneo were found to insert brass wire into the end of the penis as
an added vaginal stimulus. (BP4 544)

Interestingly, however, one sometimes finds present tense forms where one would
expect to find a past tense, which is perhaps further evidence that these matrices do
not express processes that are part of the propositional content of the text and need to
be situated in time. Note the tense combinations in the following examples:

(69) Several hundred Kurds picketed the Home Office in protest at the continuing
detentions and the deportations back to Turkey where they are said to face
oppression and torture. (A49 39)

(70) It came as no surprise to mystics that DNA is found to function like a right
handed helix in which each tread is of the same size and turns at the same rate
of 36° per tread. (ADX 136)

f. “While having some verbal properties, they also show a reduced verbal behavior”;
e.g. “they may associate only with a restricted spectrum of tense/aspect distinctions”: Our passive matrices only very rarely have future time reference, but in the rare in-
stances when they do refer to the future, they are not used evidentially.¹⁵ Be said to,
for instance, can only have the meaning ‘to be called’ in that case (recognized as a separate meaning of *say* in the *Oxford English Dictionary*; see also Goossens 1991, who suggests two different linguistic descriptions for *be said to* in Dikian Functional Grammar terms, one for what he designates as the ‘report’ sense and one for what he calls the ‘describe’ sense):

(71) We shall say that the word form *cousin* is general with respect to the distinction “male cousin”/“female cousin”; *bank*, on the other hand, *will be said to be* ambiguous with respect to the sense distinction “financial institution”/“side of river”. (FAC 898)

*Will be found to* and *will be shown to* are not uncommon in scientific texts, but the future time reference seems to result in an increased textual saliency of the processual meaning of the patterns, i.e. the finding and the showing are part of the propositional content of the text, and such instances are therefore best not treated as evidentials.

(72) It seems probable that many of the models outlined above *will be found to be* applicable to at least some passive margins, but much work remains to be done in this field. (JOT 1023)

(73) In the remaining chapters, it is argued that religion in Ireland basically solidifies the opposing alliances in an exclusive way and precludes a common state form, thus providing the structure of violence which such divisions entail. This *will be shown to be* particularly the case in the next chapter on the relationship between catholicism and the Irish constitution. (A07 650)

(74) This tone is intolerable, and augurs very ill for Carpenter's biography of Pound, *said to be* in the works. (A1B 2028)

(75) A firearm, *found to be* an air pistol modelled on a revolver, was recovered from inside the house. (K1D 288)

is that explicit future time reference excludes an evidential reading of these passive matrices, so that, as evidentials, they truly display a reduced verbal behaviour.

16 Of course, all *be*-passives are reduced in such adnominal clauses, but this is beside the point. Heine (1993: 22) says explicitly that his list of properties does not distinguish between definitional, criterial and nondefinitional properties, and clearly this particular property is of the latter kind: reduction does not define auxiliaries, it is merely typical of them.
i. “They tend to be unstressed or unable to receive contrastive stress”: This is something that will need to be established on the basis of auditory data, which were not used for this study, but I would hypothesize our patterns to be usually unstressed.

j. “They tend to be cliticizable or necessarily clitic”: For a language like English, this property more or less coincides with property h. (Heine 1993: 22 admits that some of the statements in his list can be viewed as alternative ways of saying the same thing.)

k. “They carry all morphological information relating to a predicate, such as marking distinctions of person, number, tense/aspect/modality, negation, etc.”: Naturally, the BE part of the patterns performs this task.

l. “Subject agreement also tends to be marked on the auxiliary rather than the main verb”: Idem.

m. “While auxiliaries are an obligatory part of finite clauses in certain languages, this is not necessarily so in nonfinite or imperative clauses”: This does not pertain to English.

n. “Auxiliaries may not themselves be governed by other auxiliaries, or only by a limited number of auxiliaries”: Here a remark similar to the one made under f. applies. These patterns can be preceded by auxiliaries, but when they are, their processual meaning is highlighted, preventing an evidential reading:

(76) The merit of separate qualified defences is that they focus the evidence and the legal argument, giving the jury (in contested cases) an opportunity to assess the defence, and giving the judge fairly precise guidance on the basis for sentencing; this might be thought to ensure that each defendant is dealt with more fairly, but the risk of confusing the jury in a contested case might tend to erode that protection. (ACJ 393)

(77) In accordance with paragraph 14 of the FRS, the term of convertible debt with a premium put option should be considered to end on the earliest date at which the holder has the option to require redemption. (CBU 4618)

In the case of BE said to the combination with an auxiliary inevitably results in the ‘describe’ sense of the pattern:

(78) The leitmotifs for Giselle created by Adam and Perrot can be said to disclose her emotional development. (A12 457)

o. “They do not have a meaning of their own, or do not contribute to the meaning of the sentence but rather are “synsemantic” and “syncategorematic” to the lexeme to which they apply (typically the main verb); that is, they preserve the categorial status of the latter”: This seems to be a paraphrase of property g.
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p. “They tend to occur separately from the main verb”: This is a property relevant for auxiliaries in agglutinative languages.

q. “They may be bound to some adjacent element”: Idem.

r. “Unlike verbs, they may not be nominalized or occur in compounds”: Indeed our patterns can’t be and don’t.

s. “They tend to occur in a fixed order and in a fixed position in the clause”: The grammaticalization of passive matrices into auxiliary-like elements indeed does not have any word order effects, unlike in the case of the “epistemic phrases” I think and I guess, main clauses that were grammaticalized as adverbs, and which as a result can “float to various positions in the clause to which they are providing testimony” (Thompson and Mulac 1991: 326). However, the dropping of word order restrictions is of course not a characteristic of grammaticalization as such, but merely of the “de-categorialization” to adverbs. Auxiliaries, on the other hand, cannot be positioned freely, and neither can our passive patterns.

t. “In languages with dominant order VSO, an inflected auxiliary always precedes the main verb. In languages with dominant order SOV, an inflected auxiliary always follows the main verb.”: This Greenbergian universal is a specification of the previous property. English is an SVO language, a type not mentioned here, but known to show many of the same typological features as VSO languages, this one being no exception. The core members of the English auxiliary class and our passive patterns alike behave similarly in this respect.

u. “In the presence of an auxiliary, the main verb is likely to be used in a nonfinite form, frequently carrying with it some morphological element such as a nominalization, infinitive, participial or gerundival marker”: Our patterns are of course followed by infinitives.

v. “Finally, in the presence of auxiliaries, the main verb may be associated with some locative morphology”: If the to of the infinitive qualifies as such (see Cuyckens and Verspoor 1998), this could be a specification of the previous property.

Heine’s list was intended as an inventory of characteristics associated with auxiliaries in the literature, not as a definition of auxiliaries, and as such it turned out to be a useful heuristic tool that has allowed me to add descriptive detail here and there. As hinted at in my comments there is a fair amount of overlap and the list could be reduced to perhaps more manageable proportions. For reasons of thematic unity, however, to do so is not a task I have set myself in this paper. My purpose has merely been to demonstrate that the evidential patterns under investigation are not at odds with the properties attributed to less controversial members of the category, i.e. to establish their auxiliariness.
At the very least grammaticalized passive “matrices” are no longer “main clauses” introducing “complement clauses”. Similar to the “epistemic phrases” I think and I guess mentioned above, main clauses that were grammaticalized as adverbs (Thompson and Mulac 1991: 316-318), the grammaticalization of these passives does not only involve a semantic shift from “verbs of saying, thinking or showing something” to markers of evidentiality, but also a shift in syntactic category from full verbs to auxiliary-like catenatives, syntactically similar to begin and want. Perhaps the term “emergent auxiliaries” could be applied to them (cf. Ramat and Hopper 1998: 5). On Heine’s (1993: 58-66) seven point scale of auxiliation (going from Stage A, fully lexical, to Stage G, purely grammatical) they may be argued to occupy third place (Stage C) along with be going to, be able to and continue, which is not a bad score, given that can, may, should and would are only Stage E items. Briefly,

in Stage A, the verb has its full lexical meaning and the complement typically refers to a concrete object (as in My friend needs a ticket);

in Stage B, the complement refers to a dynamic situation rather than to an objectlike entity (He avoided getting caught);

in Stage C, the subject NP is no longer confined to willful/human referents and the verb comes to express some “formulaic” function such as a notion of tense, aspect, or modality; the verb can now take a cognate complement, as in Desmond keeps keeping dogs;

in Stage D, the verb may not be inflected for tense and tends to lose its ability to form imperatives, to be nominalized, or to passivize; it is no longer associated with nouns as its complement nucleus, and takes only one kind of nonfinite verbal complement;

in Stage E, the verb loses its ability to be separately negated and to occur in other positions in the clause; processes such as cliticization and erosion are triggered, so that the verb loses in word status and phonological substance, and/or that the nominalizing and/or adverbial morphology on the complement is eroded;

in Stage F, the verb shifts from clitic to affix status, with some morphosyntactic relics indicative of the original structure remaining; and in the final Stage G, these relics are no longer there.

Reasons for classifying our patterns as Stage C items are the following:

a. Helped by the fact that their sources are passives, our patterns do not need animate subject NPs.

17 Verhagen (1996) has claimed about Dutch matrix clauses that these always fulfill a “subjective” (in the sense of Traugott 1995) ancillary function, and are therefore best not perceived as “main” clauses. This might be going too far, even for Dutch.
b. As markers of evidentiality they express a modal meaning.

c. They can take a cognate complement. Real (corpus) examples of such complements are never easy to come by, but here is one example:

(79) Pheidias himself is said to have said that his inspiration for [the Zeus statue] came from Homer's lines: So Zeus spoke and assented, and nodded his dark brows; and the strong locks moved on the King's immortal head; and he shook great Olympus. (G3C 1632)

d. As mentioned above (under property e.) our patterns have present as well as past tense forms, which prevents their climb to Stage D, but there may be indications that the past tense forms are losing ground (see above).

e. Our patterns are followed by to-infinitives rather than bare infinitives, the to being a clear case of nominalizing morphology, which excludes them from Stage E.

5. Degree of grammaticalization

So, believe-type verbs entering into the pattern (BE) Ved to can be used for evidential purposes, and there are unmistakeable signs of auxiliariness, but can all representatives of the pattern be said to have grammaticalized into auxiliaries, i.e. does it matter what the matrix verb is? Undoubtedly, the pattern has an evidential potential, and irrespective of the degree of grammaticalization of individual representatives of the pattern, it should be stressed that it is not the verbs that enter the pattern (e.g. SAY, THINK, FIND, ...) which are the potential sources of grammaticalization, but verb-pattern combinations (e.g. (BE) said to, (BE) thought to, (BE) found to, ...). As Bybee et al. (1994: 11) point out, “[i]t is the entire construction, and not simply the lexical meaning of the stem, which is the precursor, and hence the source, of the grammatical meaning”. One might go even further and say that it is the pattern itself which is the source: if we assume that this pattern carries its own meaning (as in Construction Grammar, cf. Goldberg 1995), the phenomenon described here can indeed be adduced as an illustration of Bisang’s (1998: 14) claim that “constructions with their independent meaning themselves can also become the result of processes of grammaticalization”. But this does not entail that all verb-pattern combinations have grammaticalized to the same extent, i.e. that they are equally readily available as markers of evidentiality.

For a start, some combinations are much more frequent than others. As can be gleaned from Table 1, the five most frequent passive patterns are, in this order (and skipping (BE) supposed to, for the reason mentioned in note 11): (BE) said to, (BE) thought to, (BE) considered to, (BE) found to and (BE) believed to, which together account for over half of all tokens. If frequency is a function of grammaticalization, then these are better candidates for the status of grammaticalized vocabulary items than, say, (BE) presumed to, (BE) proved to, (BE) reputed to, (BE) rumoured to or (BE)
acknowledged to. Moreover, the verbs occurring in these five most frequent patterns (say, think, consider, find and believe) are also more general in meaning than presume, prove, repute, rumour and acknowledge, and if it is lexical items with a certain degree of generality that are used in constructions that enter into grammati-
calization (Bybee et al. 1994: 5; see also Heine 1993: 28) then that as well makes the
former patterns more likely nominees than the latter.

If the patterns’ relative capacity to combine with lexical infinitives is taken to be an
objective measure of the extension of their distribution — the more easily it
combines with lexical infinitives the greater its “expansion” (Lehmann 1995: 142)
and the higher its degree of grammaticalization — then, among the five most
frequent patterns, (BE) said to, (BE) thought to and (BE) found to do better than (BE)
considered to and (BE) believed to (see Table 2), but high scorers here as well are
(BE) known to, (BE) shown to, (BE) estimated to, (BE) assumed to and (BE) presumed
to. Note that since the latter, less frequent, patterns combine with lexical infinitives
more easily than the five most frequent patterns (Table 2), greater tolerance for
lexical infinitives cannot simply be relativized to frequency: it is not the case that a
more frequently occurring matrix verb occurs with more complement verb types
simply because it is more frequent.

Finally, the other observation which lay at the origin of this investigation, i.e. the dis-
crepancy in the frequencies of passive and active matrices, might also be a measure
of the degree of grammaticalization. On average passives occur about three times
more often than actives, and as suggested elsewhere there might be good informa-
tion/thematic structural reasons for this (Noël 1998b), but why should (BE) reported
to and (BE) alleged to have a frequency of occurrence which is more than 30 times
higher than that of their active counterparts, more than ten times the size of the aver-
age proportion of actives to passives (see Table 1)? And how come (BE) said to no
longer has an active counterpart? 18 In other words, “intraparadigmatic variability”

18 An anonymous referee has put forward that there might be a circular argument here along
the lines that in section 2 of this paper I proposed that preference for the passive matrix form
is due to grammaticalization, whereas here I am understood to be saying that degree of
grammaticalization is due to the preference for the passive matrix form: A because of B and
B because of A. However, both halves, but especially the second half, of this paraphrase are
inaccurate. Near the beginning of the paper I suggested that the higher frequency of passive
matrices as compared to active matrices is both cause and result of the grammaticalization of
(instances of) the passive pattern. What I am saying here, on the other hand, builds on a
suggestion made in section 4 of the paper, namely that the greater the discrepancy in the
frequency of certain verb-passive pattern combinations vis-à-vis their active counterparts, the
more likely it is that these verb-pattern combinations are grammaticalizing, because the
discrepancy can be said to be indicative of a bleaching out of the process meaning of the
verbs. This does not imply that the degree of grammaticalization is due to high frequency.
Quite the opposite is true: since there are such huge differences in the relative frequencies of
passive and active patterns between individual verb-pattern combinations, and since
information/thematic structural factors cannot explain these differences, they could be due to
the degree of grammaticalization. The formula should therefore read: A (high frequency)
because of B (grammaticalization) (after B because of A); and the greater A (relative to the
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(Lehmann 1995: 138) — i.e. the freedom to choose opposite members of the paradigm, an active or a passive matrix — seems to be severely reduced for some members of the believe class. Therefore, if, as Lehmann (1995: 138) suggests, intraparadigmatic variability decreases with increasing grammaticalization, then (BE) said to, (BE) reputed to, (BE) rumoured to, (BE) reported to and (BE) alleged to are more grammaticalized than, say, (BE) found to, (BE) judged to, (BE) shown to, (BE) known to and (BE) considered to, though all five most frequent passive patterns occur more often than the corresponding active patterns (Table 1): (BE) said to does not have an active variant, (BE) thought to occurs over twelve times more often than its active mate, and (BE) found to more than two times. Only (BE) considered to and (BE) believed to have an attestation that is only slightly higher than that of their active opposite numbers.

Table 6 is an attempt to combine these three measures of the degree of grammaticalization (frequency, expansion and intraparadigmatic variability). In it the 22 verbs that were attested over a hundred times with an infinitival complement (actives and passives combined, i.e. the first 22 verbs in Table 1, not counting suppose) were first ranked for each of the three measures (absolute frequency of the passive pattern, gleanable from Table 1; the proportion of lexical infinitives in combination with passive matrix verbs, as in Table 2; and the proportion of passive to active matrices, as in Table 1) and then ordered as per the sum of the three rankings. The pattern that comes out on top is (BE) said to, closely followed by (BE) thought to, with (BE) found to and (BE) shown to a joint third, and (BE) known to, (BE) estimated to, (BE) held to, (BE) deemed to and (BE) assumed to not far behind. Somewhat surprisingly, two of the five most frequent patterns, (BE) considered to and (BE) believed to, only show up in joint thirteenth position, both scoring relatively low on expansion and high on intraparadigmatic variability (but resulting in a low ranking on this scale — see above).

Table 6: Ranking the patterns for degree of grammaticalization combining three criteria

<table>
<thead>
<tr>
<th>combined ranking</th>
<th>pattern</th>
<th>frequency ranking</th>
<th>expansion ranking</th>
<th>variabilty ranking</th>
<th>ranking sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(BE) said to</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>(BE) thought to</td>
<td>2</td>
<td>9</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>(BE) found to</td>
<td>4</td>
<td>6</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>(BE) shown to</td>
<td>6</td>
<td>2</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>5</td>
<td>(BE) known to</td>
<td>7</td>
<td>1</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>5</td>
<td>(BE) estimated to</td>
<td>14</td>
<td>3</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>(BE) held to</td>
<td>8</td>
<td>7</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>8</td>
<td>(BE) deemed to</td>
<td>9</td>
<td>11</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>(BE) assumed to</td>
<td>10</td>
<td>4</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>(BE) presumed to</td>
<td>19</td>
<td>5</td>
<td>7</td>
<td>31</td>
</tr>
</tbody>
</table>

frequency of its active mate), the more B. There is no circularity in this, because the two halves of the formula can be reduced to “A because of B”.

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The fairly low ranking of (BE) considered to and (BE) believed to is especially surprising in the light of the counterintuitively high ranking of the much less frequent pattern (BE) estimated to, which is mainly the result of its high expansion score. However, a closer look at the semantic range of the lexical verbs that combine with (BE) estimated to reveals that the expansion criterion as I have used it here is in need of some refinement: (BE) estimated to often occurs in combination with a lexical verb, but as it turns out with a fairly restricted range of verbs. (80) lists the lexical verbs counted in Table 2 which occur more than once, specifying their frequency between brackets.

(80) (BE) estimated to cost (29), fetch (14), total (11), contain, make, sell (8), bring, take (5), account, occur, produce (4), increase, realise, represent, weigh (3), average, cause, create, exist, include, provide (2)

From this list emerges a clear ‘semantic profile’ or ‘semantic prosody’ (Stubbs 1995): (BE) estimated to combines most naturally with verbs that help to express what a total of something adds up to. The verb cost on its own accounts for almost 18% of all lexical verbs that combine with it. Cost, fetch (as in to fetch a certain price) and total together make up almost a third of the attested combinations. In other words, the high score of (BE) estimated to on the expansion scale needs to be relativized: the pattern combines less freely with lexical verbs than this high score would suggest. When, on the other hand, we look for typical ‘collocates’ (Sinclair 1991) of the five most frequent patterns, such semantic profiles, if they are there at all, are certainly much less pronounced.

(81) (BE) said to give, represent (5), belong, involve, possess, resemble, take (4), characterise, depend, lie, live, offer (3), affect, amount, come, comprise, consist, constitute, contain, date, demonstrate, derive, deserve, determine, dominate, exist, extend, form, need, occur, provide, reflect, spend, suffer, use (2)

(82) (BE) thought to come, make, represent (6), belong, date (5), cause, give, include (4), affect, arise, contain, lie, produce, resemble, use (3), bring, contribute, create, degrade, derive, die, encourage, exist, help, introduce, mean, need, play, reflect, see (2)
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(83) *(BE) considered to* consider (4), lie (6), need (4), constitute, offer (3), apply, contain, exist, form, involve, mean, occur, require (2)  

(84) *(BE) found to* contain (26), correlate (7), cause, exist, give (6), affect, produce, work (5), vary (4), bind, contribute, differ, fit, occur, offer, operate, provide (3), agree, apply, bring, carry, correspond, display, explain, fall, harbour, help, hold, increase, indicate, induce, influence, inhibit, lie, make, permeate, prefer, relate, show, suffer (2)  

(85) *(BE) believed to* include (7), provide (5), contain, date, involve, live (4), belong, cause, come, hold, play (3), bring, conflict, contribute, enter, help, last, occur, possess, practise, produce, represent, stand, underlie, want (2)  

Only in the case of *(BE) found to* is there a hint that the pattern is most typical of experimental research contexts, a semantic profile which is much more prominent in the case of the less frequent pattern *(BE) shown to.*  

(86) *(BE) shown to* increase (18), produce (15), reduce (14), contain, exist (11), influence, inhibit (10), cause (9), act, affect, bind, improve, occur (7), correlate, play (6), lead (5), differ, form, help, induce, relate, result, stimulate, work (4), accumulate, activate, arise, express, harbour, indicate, interfere, lower, prevent, satisfy, take, vary (3), aid, ameliorate, carry, change, date, enhance, extend, interact, make, predict, present, raise, reflect, remain, represent, reverse, secrete, stabilize, succeed (2)  

It appears, therefore, that the semantic range of the verbs following the patterns is a better measure of their expansion than the mere extent to which they combine with lexical verbs: some of the less frequent patterns may relatively often combine with lexical verbs, but only with a clear preference for a restricted range of them. It is only when there are no distinct collocational preferences that the distribution of the patterns can truly be said to have expanded, and this seems certainly to be the case for the most frequent patterns.  

Whatever the degree of grammaticalization of individual patterns, however, it goes without saying that, in more ways than one, we are dealing with a very “weak” kind of grammaticalization here. First of all, what is happening here is obviously what Lehmann (1995: 13) calls “syntacticization”, the formation of an analytic construction, the first phase of grammaticalization preceding “morphologization”, “demorphemicization” and “loss”. Second, “paradigmaticization” (Lehmann 1995: 132ff.) has not progressed very far: the number of verbs that can enter into the *(BE) Ved to* pattern is huge, and though not all verb-pattern combinations are equally serious candidates for membership of a paradigm of evidential auxiliaries, the preceding paragraphs suggest that it is far from clear exactly which combinations might eventually constitute such a paradigm and what, if any, the division of labour will be between its members. Compared to the English personal pronoun paradigm, for instance, there is indeed very little “paradigmatic”.  

It is also obvious from our data, though no statistical evidence for it was presented here, that the dominant contexts for the passive construction under investigation can be broadly characterized as either journalistic or scientific. For the construction, or
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instances of it, to have become “completely” grammaticalized no contextual restrictions need to be shown to apply. What we are dealing with here probably still is “incipient grammaticalization” (Hopper 1998: 148) and its dominant contexts illustrate “the importance of seeking the sources of a grammatical construction in a specific discourse collocation, or at least a context” (Hopper 1998: 153) and “the necessity to investigate texts for insights into the emergence of grammatical forms” (Hopper 1998: 156).

References

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Chapter 6


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Chapter 7

Translations as evidence for semantics: an illustration

Though a corpus-based linguistics is potentially more empirical than the intuition-based kind, the mere use of a corpus does not guarantee empiricalness. A monolingual corpus is good for counting forms but it does not readily reveal their meanings. Since meanings are not directly observable, the monolingual corpus can only provide circumstantial evidence for them. Their (psychological) reality, however, can only be established through informant testing. But then, few linguists have the facilities to do more than pay lip-service to the use of informants. The translation corpus could provide a way out of the crisis, since translators, through the linguistic choices they make, inadvertently supply evidence of the meanings of the forms they are receiving and producing. The paper illustrates this by showing how data from a translation corpus can complement evidence from a monolingual corpus to prove that English forms like *BE said to*, *BE considered to*, *BE reported to*, etc. are turning into evidential auxiliaries.

1. Empirical linguistics

With the increased availability of ever larger computerized corpora of texts — the British National Corpus having recently become available outside Europe and the American National Corpus being in the making — the day may be near for it to become completely unacceptable for linguists of whatever ilk to solely rely on their own and a few of their family and friends’ intuitions as a source of data. Mention has already been made of a paradigm shift in this respect (Rudanko 2000). But does this necessarily mean that hardcore linguistics is becoming/will become much more of an empirical science than it used to be? Some have argued, of course, that linguistics is not, and does not have to be, an empirical science (see, e.g., Itkonen 1974, and the ensuing discussion between Dahl 1980 and Itkonen 1980), and some have argued, conversely, that a formal and intuition-based linguistics can be empirically correct (e.g., Sanders 1980), but even if one shares neither of these views and believes that empiricalness is a desired quality of linguistic research and that a corpus-based linguistics is potentially more empirical than an intuition-based one, the question of

1 The research reported on in this paper was made possible by the Research Fund of the University of Ghent (*Bijzonder Universitair Onderzoeksfonds* contract nos. 12052095 and 12050399). An embryonic version of it was presented at the symposium “Contrastive Linguistics and Translation Studies: Empirical Approaches”, Louvain-la-Neuve, 5-6 February 1999. I am grateful for the encouragement received from Karin Aijmer, Raphael Salkie and Anne-Marie Simon-Vandenbergen and for the comments of two anonymous referees. Correspondence address: Department of English, Ghent University, Rozier 44, B-9000 Gent, Belgium. E-mail: dirk.noel@rug.ac.be.
whether or not a corpus contributes to making one’s research empirical all depends on what it is used for and how it is used. What a corpus can do, for instance, provided it is large enough, is decide the question of the syntactic potential of lexical items, since the corpus makes it possible to observe this directly.

What a corpus can also do is hint at the semantic potential of such items, but since meaning is not directly observable, the corpus can only provide circumstantial evidence for this, and consequently corpora can only increase the empiricalness of semantic research provided that this circumstantial evidence is exploited in a systematic way. Without such systematic exploitation, an intuitional approach to corpus data is only a touch more empirical than an intuitional approach to invented data (the naturalness of the contextualized language of a corpus giving it the edge), and probably less empirical than a scientifically justified measurement of informants’ responses to “unreal” data (for at least in the latter case it is not just the researcher’s intuitions which are taken into account). But then again it is precisely the infamously informal use made of informants’ judgements by those linguists who do not call themselves experimental psycholinguists which has made those who do question the empirical status of linguistic research (see, e.g., Derwing 1980 and Ringen 1980), and making one’s informant testing less informal (e.g. in the way proposed by Schütze 1996) may be too laborious an enterprise to be thought cost-effective by those outside psychology departments. A relatively new kind of corpus may, however, provide a way out of the deadlock, i.e. the translation corpus (a.k.a. parallel corpus).

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2 Meaning is not directly observable from a monolingual corpus if it is defined cognitively, but some corpus linguists choose not to do so. Wolfgang Teubert, for instance, in his “partisan view” on corpus linguistics (Teubert 1999) defines the meaning of a “text segment” as the sum of the contexts in which it is used, which a large enough corpus does allow one to ascertain empirically:

This notion of semantics, which we shall call corpus semantics, does entirely without psychology or cognitive semantics. Corpus semantics is not interested in mental concepts or in beliefs people have; it is not concerned with the mental act of understanding a text or a text segment. [There are no page references for this and subsequent quotes from Teubert (1999) because they are taken from the WWW version of the paper (http://www.telri.de/telri2/newsletter/news18.html).]

One may wonder, however, if there is any point in an approach that separates meaning from the language user, which I would call defeatist: the fact that this definition of meaning is operationalizable does not make it ideal.

3 The kind of research I have in mind here is the work on collocations and “semantic profiles” pioneered by John Sinclair and his associates at the University of Birmingham (see, e.g., Sinclair 1991 and Baker et al., eds., 1993) and the very recent joint work of Michael Barlow and Suzanne Kemmer, which is very similar in kind (see, e.g., Kemmer & Barlow 2000).

4 Both the term “translation corpus” and the term “parallel corpus” have developed different uses. Both are used to refer to corpora of source texts and their translations in one or more languages, but the former term is also used to refer to corpora that consist entirely of translations (e.g. the Translational English Corpus in Baker 1999) and the latter is also used...
Semantics is knowledge and, as such, not directly observable. To make it observable, says the psycholinguist, you must assign the language user some particular performative task (Derwing 1980: 176). The idea that translation can be thought of as such a task is one that started to surface in the late nineties, when a number of people involved with translation corpora, but primarily concerned with contrastive linguistics, machine translation, or the technical aspects of automatically identifying translational equivalents in source and target texts, suddenly realized that these corpora could also be of use to the general linguist who is interested in providing an empirical basis for semantic claims. Here is a short anthology of statements to this effect:

[...] a translational basis for semantic descriptions may be interesting in a wider linguistic context, too. For one thing, translation takes place on a very large scale, and it brings a desirable multilingual perspective into the study of linguistic semantics, which traditionally is heavily monolingual in its scope. For another, the activity of translation is one of the very few cases where speakers evaluate meaning relations between expressions without doing so as part of some kind of meta-linguistic, philosophical or theoretical reflection, but as a normal kind of linguistic activity. This inspires confidence in the intersubjectivity of such evaluations. Furthermore, the activity has what one might call extensional consequences: the result of the translator’s evaluations is manifest in observable relations between texts. This latter point is interesting from a methodological point of view: it contributes to the externalisation of the criteria against which linguistic descriptions should be evaluated. Such externalisation is important in order to strengthen the empirical foundations of linguistics. (Dyvik 1998: 51)

Why are translations interesting? They incorporate an analysis of the source text. [...] Why are translation corpora interesting? [...] We can think of a translation corpus as an annotated monolingual corpus. (Salkie 1999)

Working with parallel corpora can help to solve the question of meaning. For multilingual corpus semantics gives access to linguistic practice, not the linguistic knowledge of textbooks, grammars, and dictionaries but the knowledge translators use in their translations. If we agree that the meaning of a text or a text segment is only accessible to us by a paraphrase of it, grounded in a multitude of previous occurrences, then parallel corpora are repositories of such paraphrases. (Teubert 1999)\(^5\)

\(^5\) The reference to translators’ knowledge in this quote seems to be at odds, however, with Teubert’s (1999) characterization of meaning as a “strictly linguistic” notion:

to refer to corpora that consist exclusively of original texts in two or more languages which share content and text type features (e.g., by Lauridsen 1996). These are also called “comparable corpora” (e.g., by Gellerstam 1996 and Peters et al. 2000). In this article, reference is only to bi- or multilingual corpora consisting of source texts and their translations.
A text and its translation constitute a *bitext*. Bitexts are one of the richest sources of linguistic knowledge because the translation of a text into another language can be viewed as a detailed annotation of what that text means. (Melamed 2001: 1)

In other words, the texts produced by translators can be treated as a collection of informants’ judgements about the meaning of the linguistic forms in the source texts, with the added advantage that they are readily available to the linguist, who does not have to worry about constructing an experimental set-up. Translation corpora can therefore be considered to be a means of empirically testing one’s intuitions (or hypotheses) about the semantics of linguistic forms that is complementary to the systematic exploitation of the circumstantial evidence provided by monolingual corpora. The purpose of this article is to present an illustration of this, which has arisen out of my continuing interest in the clausal complementation of *believe*-type verbs. In the next section, I will sketch out an interesting empirical fact in connection with the combination of these verbs with accusative and infinitive complements, and briefly reiterate the twofold explanation for it reported on earlier in Noël (1998, 2001). This section can at once serve as an exemplification of what can be observed from a monolingual corpus, and illustrate the limitations of monolingual corpora for the substantiation of semantic claims. In section 3, I will show how a translation corpus can offer further empirical support for one part of the explanation (presented without an elaboration of such evidence in Noël 2001), which will be a demonstration of the usefulness of translation corpora for semantic research.

2. The predominance of passive matrices before accusative and infinitive complements

On average, English verbs of the *believe* class, characterized by the alternation between finite clausal complements and infinitival complements (Postal 1974; Levin 1993; Francis, Hunston & Manning 1996), combine with the latter kind of complement about three times more often as passives than as actives (Noël 1998). For some members of the class, the predominance of the passive is much more dramatic even, making sentences like the [b] examples in (1)-(3) relatively rare, and for verbs like

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As in the case of monolingual corpus semantics, meaning is a strictly linguistic or, to be more precise, a strictly textual notion. Meaning is paraphrase.

For those linguists, however, for whom language and meaning are part of human knowledge — and in this they are different from the European Union officials sponsoring Teubert’s research, for whom a language is something that requires efficient translation — there is no point in de-humanizing meaning. For them, meaning is not paraphrase, but paraphrase is symptomatic of meaning.

6 All monolingual English examples are taken from the first (1995) version of the 100-million-word British National Corpus (BNC), which was queried using version 0.927 of the SARA client software (for a description of the corpus, see Aston and Burnard 1998). In the source code that follows each example the three positions before the space identify the excerpt it was extracted from (which can be looked up in Burnard 1995); the number
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say, rumour and repute the active pattern is even ungrammatical (see Table 1, taken from Noël 2001).

(1) a. Armed soldiers were reported to be patrolling the streets of Bucharest and the capital's students were said to be voicing solidarity with the protesters in the north of the country, in what appeared to be a menacing escalation of the crisis. (AA5 776)

b. Second ascensionist Steve Reid reports the crag to be of good, rough rock, although further cleaning would make the climbs more enjoyable. (CG2 1281)

(2) a. On March 21, Israeli commandos infiltrated southern Lebanon north of the “security zone” (created by Israel in 1985), killing two people in the village of Louwaizeh who were alleged to be pro-Iranian Hezbollah guerrillas. (HL5 2268)

b. It is certainly not unreasonable to refuse to give up a bank note which you pick up in the street to the first stranger who alleges it to be his, if you tell him that you must make further inquiries or that he must produce evidence which will authenticate his claim. (FSS 753)

(3) a. Other northern Malawians arrested between February and May 1989 are thought to be among those set free. (A03 59)

b. I had always thought him to be egotistical and attention-seeking; but apart from mentioning his invitation to the Dukakis Inaugural, he answered modestly, even humbly: praising his friend's work and disparaging his own. (AE0 2777)

This predominance of the passive can probably for a large part be attributed to information structure (along the lines of Bolinger 1952; Chafe 1976, 1987; Firbas 1967, 1992; Givón 1983; Halliday 1967, 1994: chapter 3; Prince 1981) and the thematic structure of texts (in the sense of Daneš 1974; see also Brown & Yule 1983: chapter 4; Ghadessy, ed., 1995; Berry 1996). Irrespective of whether their matrix clauses are active or passive, the subjects of infinitival complements usually have a ‘given’ referent (Noël 1997), so that infinitives favour the passive pattern because it puts the given subject in sentence-initial position, the preferred position for given information (Mair 1990; Noël 1998). The givenness of the subject of the infinitive also puts it in competition with the active matrix clause subject for topic/theme status, and often the choice of a passive subject as unmarked sentence topic/theme is to be preferred for the thematic progression of the text (Noël 1998).

As I suggested in Noël (2001), however, the higher frequency of the passive pattern resulting from information/thematic structural factors may have been the catalyst of a grammaticalization process causing the reanalysis of some of these passive matrices into auxiliary-like evidentials, which in turn may have led to a further increase in their frequency. Unlike their active counterparts, the passive matrices of infinitival complements seem to carry an evidential meaning (in the sense of Chafe & Nichols, eds., 1986), loosely defined as the expression of the kind of evidence a person has for...
making factual claims (Anderson 1986: 273), that is, they signal that the speaker/writer is not the (sole) judge of the factuality of his/her statement by calling in an unspecified source, from whose implied existence this factuality can be inferred. Below are a few more examples to enable the reader to empathize with this characterization.

Table 1: Proportion of passive to active matrix verbs

<table>
<thead>
<tr>
<th>verb</th>
<th>n passives</th>
<th>n actives</th>
<th>index value</th>
</tr>
</thead>
<tbody>
<tr>
<td>say</td>
<td>1945</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>report</td>
<td>391</td>
<td>11</td>
<td>35.55</td>
</tr>
<tr>
<td>allege</td>
<td>101</td>
<td>3</td>
<td>33.67</td>
</tr>
<tr>
<td>suppose</td>
<td>1935</td>
<td>75</td>
<td>25.80</td>
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<tr>
<td>think</td>
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<td>109</td>
<td>12.68</td>
</tr>
<tr>
<td>deem</td>
<td>409</td>
<td>51</td>
<td>8.02</td>
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<tr>
<td>estimate</td>
<td>212</td>
<td>29</td>
<td>7.31</td>
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<td>6.53</td>
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<tr>
<td>reckon</td>
<td>113</td>
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<td>5.95</td>
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<td>hold</td>
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<td>80</td>
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<tr>
<td>understand</td>
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<td>find</td>
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<tr>
<td>judge</td>
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<tr>
<td>show</td>
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<td>292</td>
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<tr>
<td>consider</td>
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<tr>
<td>believe</td>
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</tr>
<tr>
<td>feel</td>
<td>235</td>
<td>252</td>
<td>0.93</td>
</tr>
</tbody>
</table>

The verbs listed in Table 1 are the sixty-odd “B-element R-triggers” (i.e. verbs of the believe type that trigger raising or, in other words, display the alternation between that-clauses and accusative and infinitives) that are mentioned by Postal (1974: 297-317) in his chapter on “The scope of raising in clause domains”. In order to determine the frequency of passive verbs with infinitival complements the BNC was queried for occurrences of the past participle form of the verb either immediately followed by to be (i.e., Ved to be) or separated from to be by a by-phrase with a one-, two-, three- or four-word NP (i.e., Ved by _ to be, Ved by _ _ to be, Ved by _ _ _ to be, and Ved by _ _ _ _ to be). To determine the frequency of active verbs with infinitival complements the corpus was queried for the base form, the s-form, the ing-form and the preterite and/or past participle form of the verb followed by either a one-, two-, three- or four-word NP and to be (i.e., V _ _ to be, V _ _ _ to be, and V _ _ _ _ to be) or by to be only (i.e., V to be, to include occurrences in relative clauses and other cases in which the subject of the infinitive is fronted). The index value in the last column was arrived at by dividing the absolute number of passive occurrences by the absolute number of active occurrences and should be read as follows: “there are more than 35 times as many passive matrices containing the verb report than there are active matrices with this verb”. If the index value is less than 1.00, there are more actives than passives.
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<table>
<thead>
<tr>
<th>Word</th>
<th>Count 1</th>
<th>Count 2</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
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<td>take</td>
<td>237</td>
<td>315</td>
<td>0.75</td>
</tr>
<tr>
<td>prove</td>
<td>56</td>
<td>98</td>
<td>0.57</td>
</tr>
<tr>
<td>declare</td>
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<td>15</td>
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<td>25</td>
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<td>64</td>
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<td>6</td>
<td>3.33</td>
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<td>admit</td>
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<td>2</td>
<td>9.50</td>
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<td>6</td>
<td>1</td>
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<td>rule</td>
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<td>1</td>
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</tr>
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<td>affirm</td>
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<tr>
<td>intuit</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>recollect</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>stipulate</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>verify</td>
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<td>0</td>
<td>-</td>
</tr>
<tr>
<td>wager</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>12971</td>
<td>4636</td>
<td>2.80</td>
</tr>
</tbody>
</table>
(4) And the main news again. The defence secretary has announced further cuts to Britain's armed forces, including the cancellation of a nuclear missile system for the R A F. The decisions came as M Ps warned that cuts the treasury are said to be seeking, would leave Britain unable to defend itself. (K6D 248)

(5) You're listening to the Fox Report. It's six twenty eight. Still major problems on the A thirty four northbound, between the M four and junction thirteen of the M four and the Oxford ringroad. There's reported to be a four to ten vehicle pile up there and that's close to the roadworks. (KRT 5511)

(6) Gwent declares war on home caterers ENVIRONMENTAL health officers (EHOs) in Gwent have shut down a “backstreet kitchen” operating from a terraced house after a salmonella outbreak. A local council spokesman said the council had declared war on large-scale home catering because of the outbreak. Food for more than 100 guests at two wedding receptions was alleged to have been prepared at the kitchen. (AOC 241)

(7) The Hill Samuel plan envisages splitting off the UK naval and avionics businesses and giving shareholders one share in the new company for every share they hold in the existing organisation.Talks are believed to have been held with Thorn EMI, whose defence interests are up for sale. (A1E 402)

(8) Olimpia’s ground beetle, a green- and gold-coloured species found only in the Italian Alps, is facing extinction. Discovered in 1855, there are estimated to be only 1,000 specimens left in the wild. (J2Y 358)

(9) It is part Gothic and part Romanesque, with pointed vaults but round arches. The smooth pillars which support it in the centre have capitals of a style that has made some art historians suppose that they may originally have come from the Roman villa or palace presumed to have existed on this site in the fourth century. (FA2 886)

(10) FLAT CHESTS Mongolian women are reckoned to have the world's flattest female chests in a society where mammaries are considered appalling deformities. (BP4 227)

(11) They have reservations concerning their middle jumper, Tony Copsley, aside from the fact that he is still labelled, as exemplified by that marvellously unfortunate tattoo on his behind, “Made in England”. But Gareth Llewellyn, as front jumper, is held to have answered many of his detractors. (K5A 1564)

(12) Eurotunnel, which is already in default of its credit agreement with the syndicate of 200 banks, is seeking an extra £1.2bn to £1.6bn on top of the £6bn raised so far. The Bank of England is understood to be keeping a watch as discussions continue between Eurotunnel and its four agent banks, which include the Midland and National Westminster. (A26 487)

It is not enough, however, to illustrate that a pattern can have an evidential function for it to qualify as an evidential, for as Anderson (1986: 274) points out, evidentials are a grammatical phenomenon. For these passive patterns to be deserving of the term evidential they must be the result of lexical/grammatical reanalyses of the verbs contained in them, which have turned the patterns into new vocabulary items, with
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grammatical functions that differ from those of the original items. In Noël (2001) I adduced three criteria of grammaticalization (proposed by Lehmann 1995[1982]) to argue that some of these verb-pattern combinations are more likely to have undergone such an evolution than others: frequency, intraparadigmatic variability and expansion. I will briefly discuss each of these in turn.

**Frequency.** Grammatical words are more frequent than content words. The more frequent combinations are therefore more likely to have grammaticalized than the less frequent ones (Lehmann 1995: 142). If we forget about *be supposed to*, which has obviously undergone a different kind of grammaticalization into a deontic modal, the most likely combinations to have grammaticalized into evidentials are therefore *be said to, be thought to, be considered to, be found to* and *be believed to*, which together account for over half of all tokens of the pattern (see Table 1).

**Intraparadigmatic variability.** This is the freedom to choose opposite members of a paradigm. Grammatical words are less freely chosen than content words, so intraparadigmatic variability decreases with increasing grammaticalization (Lehmann 1995: 138). As mentioned above, on average the passive pattern occurs about three times more often than the active one, and there might be good information/thematic structural reasons for this, but why should *be reported to* and *be alleged to* have a frequency of occurrence which is more than 30 times higher than that of their active counterparts, more than ten times the size of the average proportion of passives to actives (see Table 1). And how come *be said to* no longer has an active counterpart? Clearly, the fact that these passive patterns are so much more likely to occur than their active variants is an indication that they have developed a special use of their own.

**Expansion.** This term is used in grammaticalization theory to refer to the dropping of selection restrictions. Grammaticalized items have a wider distribution than their lexical source items (Lehmann 1995: 141-142). *Believe*-type verbs used to be combined only with infinitival complements containing *be*, but though *be* and (perfective or possessive) *have* are still the dominant verbs in all infinitival complements with verbs of the *believe* class, irrespective of voice, lexical verbs, especially dynamic ones, are more likely to co-occur with passive matrices than with actives (see Table 2, taken from Noël 2001), a clear sign of the expansion of the passive pattern. Here are a few examples of passive matrices in combination with lexical infinitives:

13) Coca-Cola *is said to control* around 80 per cent of the French cola market and Pepsi is keen to strike back. (A7T 354)
14) In general, the Aristotelians *were thought to lay* too much stress on words and books, terminology and merely verbal classifications, and debate and controversy, and too little on things and observation of the world. (ABM 637)
15) Appointment of new staff is not generally advertised, as this has not *been found to bring* the desired type of candidate forward. (ALB 86)
16) Migrating bowhead whales *are reported to give* drilling ships in the Beaufort Sea a wide berth on their migrations. (ABC 1649)
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(17) Angiotensin II has been shown to increase glomerular capillary hydraulic pressure. (EA1 659)

(18) Poorer households are known to spend a larger proportion of their income on essentials such as food and fuel for heating. (AP5 973)

(19) The press has a majority on the board of directors (eight seats out of 15) and thereby is held to guarantee pluralism and the agency’s independence of the state. (EF6 1038)

(20) The work experience module was felt to assist preparation, monitoring and review of the work placements. (HBM 352)

(21) Halitosis is estimated to afflict 80 per cent of the world’s adult population, and has been cited as a contributory factor in divorce and social isolation. (H06 86)

Table 2: Percentages of lexical verbs after active and passive matrices (listed in descending order for the passives)\(^8\)

<table>
<thead>
<tr>
<th>verb</th>
<th>active matrix</th>
<th>passive matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>suppose</td>
<td>20.00</td>
<td>53.00</td>
</tr>
<tr>
<td>know</td>
<td>13.64</td>
<td>44.30</td>
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<td>show</td>
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</tr>
<tr>
<td>estimate</td>
<td>-</td>
<td>33.40</td>
</tr>
<tr>
<td>assume</td>
<td>5.08</td>
<td>23.21</td>
</tr>
<tr>
<td>presume</td>
<td>33.33</td>
<td>21.62</td>
</tr>
<tr>
<td>find</td>
<td>5.03</td>
<td>20.90</td>
</tr>
<tr>
<td>hold</td>
<td>-</td>
<td>19.59</td>
</tr>
<tr>
<td>say</td>
<td>-</td>
<td>19.50</td>
</tr>
<tr>
<td>think</td>
<td>-</td>
<td>19.00</td>
</tr>
<tr>
<td>take</td>
<td>34.40</td>
<td>18.70</td>
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<td>deem</td>
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<td>17.41</td>
</tr>
<tr>
<td>understand</td>
<td>42.50</td>
<td>17.39</td>
</tr>
<tr>
<td>imagine</td>
<td>1.79</td>
<td>16.00</td>
</tr>
<tr>
<td>believe</td>
<td>2.96</td>
<td>15.40</td>
</tr>
<tr>
<td>feel</td>
<td>-</td>
<td>14.43</td>
</tr>
</tbody>
</table>

\(^8\) The percentages in the active matrix column are based on a manual check of all the hits of a BNC query for the base form, the s-form, the ing-form and the preterite and/or past participle form of the verbs followed by any word, in turn followed by the infinitive marker to, i.e. on a search for active matrices whose infinitival complements have one-place subjects. The basis for the percentages in the passive matrix column was a BNC query for past participle forms immediately followed by the infinitive marker to, manually checked for occurrences of lexical infinitives. These percentages should be approached with caution, however. The high percentages of lexical verbs with active take and understand can be attributed to the collocations take/understand [something] to mean, and though one third of all infinitives occurring after active presume is a lexical verb, this amounts to only one case out of a total of three. See Noël (2001) for the raw figures.
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Among the five most frequent patterns, be said to, be thought to and be found to do better expansionwise than be considered to and be believed to. Other high scorers for this criterion are be known to, be shown to, be estimated to and be assumed to, and note that since the latter, less frequent, patterns combine with lexical infinitives more easily than the five most frequent patterns, greater tolerance for lexical infinitives cannot simply be relativized to frequency: it is not the case that a more frequently occurring matrix verb occurs with more complement verb types simply because it is more frequent.

To summarize this section we can say that data from a large monolingual corpus reveal that some be V ed to patterns have a distribution that is different from a) that of their active pendants, and b) that of other passive patterns. These distributional differences are consistent with some of the criteria used in grammaticalization theory and can therefore be considered to be circumstantial evidence of the function of these patterns. The three criteria do not always work together, of course, and they do not unequivocally identify a set of evidential auxiliaries, but they do provide support for the hypothesis that at least some representatives of the passive pattern have a grammatical, auxiliary-like, function. For a more extensive argumentation for this, and for a linguistic argumentation for the auxiliariness of (some representatives of) the be V ed to pattern, I would like to refer the reader to Noël (2001). What neither a purely linguistic argumentation nor the kind of circumstantial evidence sketched out in this section can do, however, is provide direct evidence that the hypothesized evidential nature of these passive matrices has any psychological reality for the language user. In the next section I will show how a translation corpus can do exactly that.

3. Toward a new kind of linguistic argumentation?

A defining characteristic of evidentials is that they are not themselves the main predication of the clause, but a specification added to a factual claim about something else (Anderson 1986: 274). Semantically, the verbs of the believe class are all “concerned with thinking, saying, or showing something” (Francis et al. 1996: 295), but the same cannot be said of any of the sentences with passive matrices presented in the present paper. But how do we prove this? Halliday (1994: 354), who has made a similar claim about I think in sentences like I think it’s going to rain, suggests that this is evidenced by the fact that the proper tag in this case is isn’t it? rather than don’t I?, but finding real examples of this is like looking for a needle in the proverbial

<table>
<thead>
<tr>
<th>verb</th>
<th>score</th>
<th>frequency</th>
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</thead>
<tbody>
<tr>
<td>reckon</td>
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<tr>
<td>consider</td>
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<td>10.10</td>
</tr>
<tr>
<td>allege</td>
<td>-</td>
<td>8.39</td>
</tr>
<tr>
<td>rumour</td>
<td>-</td>
<td>7.87</td>
</tr>
<tr>
<td>report</td>
<td>-</td>
<td>7.10</td>
</tr>
<tr>
<td>declare</td>
<td>-</td>
<td>6.67</td>
</tr>
<tr>
<td>judge</td>
<td>-</td>
<td>6.21</td>
</tr>
<tr>
<td>prove</td>
<td>2.50</td>
<td>2.20</td>
</tr>
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</table>
haystack, so that it is difficult to collect empirical evidence for such claims, other
than the kind that resorts to informants’ intuitions. Contrastive data might, however,
provide evidence which is much less cumbersome to collect. I will illustrate this with
data from the online parallel English-(Canadian) French Canadian Hansard corpus.9

3.1. Hypothesis and possible evidence for it

Translators are language users whose linguistic choices are not only informative
about the language they are producing, they are also highly indicative of their
interpretation of the language they are receiving, and this interpretation is revelatory
of the nature of the language that is received. If and when translators provide a
congruent translation of passive matrices, or if and when passive matrices are offered
as congruent translations, not a lot can be concluded about whether or not they can
qualify as evidentials, for what we are trying to establish is that these matrices should
not be interpreted literally, which a literal match neither proves nor disproves.
Examples of congruent translations are cases in which said to be is translated by a
form of dire or one of its synonyms, found to be by a form or synonym of trouver,
and reported to be by a form or synonym of rapporter (e.g. (22)-(24)).10 But incon-
gruent translations can be revealing in two ways. First, if passive matrices are
regularly left untranslated, or conversely, if passive matrices are introduced
unwarrantedly (i.e. if there is nothing in the source text to match them),11 this may be
taken to be an indication that they do not form part of the main predication of their
sentences (e.g. (25)-(27)). And second, if passive matrices are regularly translated
with target language elements of an unmistakeable evidential nature, or if source
language elements of an unmistakeable evidential nature are translated with passive
matrices, this may be taken to be a reflection of the evidentiality of such matrices
(e.g. (28)-(30)).

(22) a. Bill C-113 will also deny benefits to people who leave their jobs
without a government-defined just cause or who were said to have
been fired for misconduct.
b. Le projet de loi C-113 refuse aussi les prestations à ceux qui quittent
leur emploi sans avoir un «motif valable», selon la définition donnée à
terme par le gouvernement, ou qu'on dit avoir été renvoyés pour
mauvaise conduite.

9 The Canadian Hansard corpus consists of aligned translations of Canadian parliamentary
debates that took place from 1986 to 1993. The concordancing was carried out at the
Laboratoire de Recherche Appliquée en Linguistique Informatique of the University of
Montreal and the corpus can be consulted through their Web site (http://www-
rali.iro.umontreal.ca/TransSearch/). The translations are between English and French, and
amount to “several dozen million words in each language”, which makes it the largest
bilingual English-French corpus available to date.
10 The results of queries of the Canadian Hansard corpus provide no indication which is the
source text and which is the target text. Nor is there any sort of numerical code with which
examples can be identified.
11 Johansson (1998: 14) has termed these “zero correspondences”.

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(23) a. Regrettably the level of compliance with recommended steps to repair defects has not been great. I think it is particularly regrettable that almost a quarter of those vessels that are being boarded by the Canadian Coast Guard are found to be defective.

b. Malheureusement, le niveau d'observation des mesures recommandées pour corriger les défauts n'a pas été très élevé et il est, à mon avis, particulièrement regrettable de trouver défectueux presque un quart des navires qui sont arraisonnés par la Garde côtière canadienne.

(24) a. When the Prime Minister was running for Parliament in the by-election in Central Nova he was reported to have said that Ottawa, and I want to use his exact words, should use its “colossal influence” in the Department of Supply and Services and the CNR to guarantee that the industries of the area, Nova Scotia, benefit.

b. Lorsque le premier ministre s'est présenté à la députation dans l'élection partielle de Central Nova, on rapporte qu'il a déclaré qu'Ottawa, et je cite ses paroles fidèlement, devrait utiliser «son influence colossale» auprès du ministère d'Approvisionnements et Services et des Chemins de fer nationaux du Canada au profit des industries de cette région, la Nouvelle-Écosse.

(25) a. As a result a picketer in my constituency was injured and hospitalized with broken vertebrae as a result of violence on this picketline, violence said to be recommended by an employer.

b. C'est ainsi qu'un gréviste de ma circonscription a eu des vertèbres fracturées et qu'il a dû être hospitalisé à cause de cette violence fomentée par un employeur.

(26) a. Sixty per cent of female clients receiving treatment for drug and alcohol abuse at a treatment centre were found to be victims of sexual assault.

b. Soixante pour cent des femmes suivant une cure de désintoxication dans un centre sont des victimes d'agression sexuelle.

(27) a. I submit that the question is very relevant and important, in light of the fact that only last week Premier Getty of Alberta was reported to have said that there will be no public hearings in Alberta.

b. Or j'estime cette question très pertinente, compte tenu du fait que, pas plus tard que la semaine dernière, le premier ministre de l'Alberta, M. Getty, a annoncé qu'il n'y aurait pas d'audiences publiques dans sa province.

(28) a. Canadians have coming to them a social wage in the form of medicare and other things that they pay for through their taxes that many of these other countries, particularly the United States which is said to have a lower tax burden, simply do not have.

b. Il ne faut pas oublier, en effet, que les Canadiens retirent des impôts qui paient certains avantages sociaux sous la forme du régime d'assurance-maladie et d'autres programmes, ce qui n'est pas le cas dans beaucoup d'autres pays, notamment les États-Unis, qui ont
supposément un fardeau fiscal plus faible quand, en fait, ce n’est pas vrai.

(29) a. In Nova Scotia, my own province, 39,000 families were found to be in poverty.
    b. Dans ma province, soit en Nouvelle-Écosse, 39000 familles vivaient dans la pauvreté.

(30) a. Indeed, when challenged about this patently false constitutional position by reporters, he was reported to have said that it will all come out in the wash.
    b. En fait, lorsque des journalistes l’ont interrogé au sujet de cette position constitutionnelle manifestement fausse, il a répondu, paraît-il, qu’on finira bien par savoir ce qu’il en est.

My central hypothesis is therefore that (at least) some verb-passive pattern combinations are auxiliary-like evidentials, and the evidence which I would suggest supports the hypothesis is of two kinds: a) the frequency of being unmatched in source text/target text pairs, and b) the semantic nature of the matches in the other language. What we need to establish then is whether in aligned source/target language extracts passive matrices are a) more often unmatched than active matrices, and b) whether they are more often matched by evidentials than are actives. To this end I queried the Canadian Hansard corpus for occurrences of combinations of the passive and (if applicable) the active pattern with SAY, THINK, CONSIDER, FIND, and BELIEVE (i.e. the five verbs — skipping SUPPOSE, see above — that occur most frequently in the passive pattern), and also with REPORT (which has the lowest intraparadigmatic variability score — resulting in a high grammaticalization score, see above — of all verbs that can also occur in active matrices). The passive pattern was looked for by querying the corpus for the past-participle form immediately followed by either to be or to have; the active pattern with the queries V+ .. to be and V+ .. to have, i.e. by queries for any form of the verbs followed by any 20 characters followed by either to be or to have. Since SAY does not occur in the active pattern, and because THINK does so only twice in the Canadian Hansard, making a comparison of actives and passives fairly futile, I will start the presentation of the results with FIND; of the three remaining frequent verb-passive pattern combinations, BE found to has the best expansion score and displays less intraparadigmatic variability than both BE considered to and BE believed to.

3.2. Results

3.2.1. BE found to

The queries with FIND produced 332 matches for the passive and 107 matches for the active pattern (confirming the predominance of passive matrices). 66 of the passives were unmatched in the other language (i.e. either they were left untranslated, or they were introduced in the translation with nothing to match it in the source text), as in
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(31)-(32). The figure for actives was significantly lower: only twelve are unmatched, as in (33)-(34).\(^\text{12}\)

<table>
<thead>
<tr>
<th></th>
<th>matched</th>
<th>unmatched</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>passive</td>
<td>266 (80%)</td>
<td>66 (20%)</td>
<td>332 (100%)</td>
</tr>
<tr>
<td>active</td>
<td>95 (89%)</td>
<td>12 (11%)</td>
<td>107 (100%)</td>
</tr>
</tbody>
</table>

Chi-square (df=1, N=439)=4.19, p<.05

(31) a. They are to send this person back to some other country but not to the country from which the individual has been found to be a refugee.
   b. On enverra cette personne dans un autre pays mais pas dans le pays dont elle est réfugiée.

(32) a. As well, the Government increased the emphasis on selling bonds by auction, which was found to be a cost effective form of issuing debt.
   b. Le gouvernement a aussi mis davantage l'accent sur la vente d'obligations aux enchères, une façon plus rentable de procéder.

(33) a. I found it to be a very enlightening process.
   b. Cet exercice a été très édifiant.

(34) a. I found him to be both to the point and concise, and I am going to try to follow his example and do the same thing.
   b. Il est allé droit au but et a fait preuve d'une grande concision, et je vais essayer de suivre son exemple.

There are seven cases in which passive matrices are matched by lexicogrammatical elements that either have a clear evidential nature, or which at the very least are non-factive. Five of these are conditionals (e.g. (29) and (35)-(36)),\(^\text{13, 14}\) and in two in-

\(^{12}\) Of course, individual translators might well choose to remove the translation of a word or pattern that is part of a sentence in the source text from the corresponding sentence in the target text and reflect its meaning in a previous or following sentence. This is not taken into account in this investigation, which is sentence-based. Ideally, the data of the present investigation should be put next to data on the extent to which such shifting goes on in this particular corpus. Empirical research into the peculiarities of translations is still in its infancy (Baker 1999: 281), however, and I have no knowledge of such data. The fact remains, though, that there is a significant difference in the “matching” of passive and active matrices, irrespective of the extent to which this difference is in actual fact a difference in “shifting”. Even in the “worst” case of there being only shifting, this difference is something that needs explanation.

\(^{13}\) Compare the general characterizations of the conditional in French grammars: “Le conditionnel présent marque un fait conjectural ou imaginaire” (Grevisse 1993: 1260); “le conditionnel évoque un procès conçu comme éventuel” (Wagner & Pinchon 1962: 370); “le conditionnel est […] le mode de l’éventuel, c’est-à-dire qu’il est apte à exprimer ce qui peut ou pourra arriver […] C’est au conditionnel que l’on présente les événements non confirmés” (Chevalier et al. 1964: 356); “L’aspect global [du conditionnel] refuse
stances the verb *sembler* is used (viz. (37) and (38)). This does not happen with active matrices.  

(35) a. The female single parents in that province number roughly 15,000 for a percentage of 70.9 per cent *found to be* below the poverty level for children under 16 years of age.

b. Les familles monoparentales ayant une femme pour chef y seraient au nombre de 15 000 environ, et *comptaient* 70.9 p. 100 des enfants de moins de seize ans qui vivent sous le seuil de la pauvreté.

(36) a. While they and every Member of this Parliament certainly do not want abuse and fraudulent claims, do not want to reward those who base their actions on human desperation, they do expect a policy that is tolerant, fair and speaks to a higher order and to the best interests of this country, rather than subscribing to those policies which may be politically expedient for the day but in the long term *are found to be* wanting.

b. Ils s'opposent certes, comme tous les députés de cette Chambre, aux abus et aux revendications frauduleuses, ils ne veulent assurément pas qu'on récompense ceux qui profitent du désespoir des autres, mais ils souhaitent une politique tolérante, juste, qui satisfasse à l'intérêt supérieur des Canadiens, au lieu d'une politique susceptible d'être temporairement rentable pour ceux qui la proposent mais qui, à la longue, *pourrait être* néfaste.

(37) a. There is not a great interest in having an elected second chamber nor in having an appointed second chamber, although in some ways that *is found to be* preferable if we must have a second chamber at all.

b. On ne se s'intéresse pas beaucoup à une deuxième chambre, qu'elle soit élue ou nommée, encore que cela *semble* préférable si l'on doit absolument en avoir une.

(38) a. The levels of the dioxin appear to be small, but in fact they have *been found to be* higher in paper tissues and in paper towels than in some other things.


Conditionals were only counted as matches of the verb-pattern combination when the verb in the conditional form was not a congruent translation of the verb in the pattern, in this case *found*.

*Sembler* does sometimes match the active pattern, but can then be considered to be a synonym of *trouver*, and therefore a congruent translation, as in (i).

(i) a. *We find this report to be* very objective and we will be analysing it closely.

b. Nous étudierons de près *ce rapport qui nous semble* d’une objectivité irréprochable.
Translations as evidence for semantics

3.2.2. *BE considered to*

This pattern is more popular in the Canadian Parliament than the previous one. Of the first 500 hits of the query for *considered to be* 453 were usable (i.e., they were instances of the passive pattern, most of the others were active patterns used in relative clauses). 69 of these, or 15.2%, were unmatched in the French texts (examples are (39) and (40)). The first 500 matches of the *consider*+ .. *to be* query produced 246 occurrences of the active pattern, of which only 19 instances, or 7.7%, were unmatched (e.g. (41)-(42)).

Table 4: Occurrence of matched vs. unmatched passive and active matrices with *CONSIDER*

<table>
<thead>
<tr>
<th></th>
<th>matched</th>
<th>unmatched</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>passive</td>
<td>384 (85%)</td>
<td>69 (15%)</td>
<td>453 (100%)</td>
</tr>
<tr>
<td>active</td>
<td>227 (92%)</td>
<td>19 (8%)</td>
<td>246 (100%)</td>
</tr>
</tbody>
</table>

Chi-square (df=1, N=699)=8.11, p<.01

(39) a. The hosting of the games will include many dynamic communities throughout the Kamloops region, which *is considered to be* one of the most beautiful and pristine areas of all of Canada.

b. Nous ferons appel, pour la tenue des Jeux, à de nombreuses collectivités très dynamiques de la région de Kamloops, l'une des plus belles et des mieux préservées du Canada.

(40) a. Fingerprints *are considered to be* something that cannot be used in a loose fashion and cannot be used for any reason whatsoever.

b. On ne peut utiliser les empreintes digitales librement, pour n'importe quelle raison.

(41) a. He also provides *what I would consider to be* reasonable deterrent penalties for the possession of child pornography, not Draconian but reasonable penalties to deter people from owning and possessing child pornography.

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The Canadian Hansard corpus does not actually tell you how many hits there are for a particular query. The only way to find out is to download them all by continuing to press the “more matches” button, which can be a lengthy procedure, depending on the number of matches, the speed of your connection, how busy the server is, etc. The *considered to be* pattern occurred often enough in the corpus to produce a sufficient number of matches to work with and I did not proceed with a query for *considered to have.*
b. Il prévoit également des peines, non pas draconiennes, mais suffisamment sévères pour avoir un effet de dissuasion et empêcher que les gens ne possèdent de la pédopornographie.

(42) a. It is also significant because the slopes of the moraine contain many small wetlands which, on an individual basis, one might not consider to be overly significant, but in total they provide that whole environmental resource that really has been declining in Ontario over the last number of years.

b. L'importance de la moraine vient du fait également que ses pentes sont parsemées de terres humides qui ne représentent peut-être pas grand-chose en soi, mais qui ensemble constituent une ressource naturelle qu'on voit décliner en Ontario depuis quelques années.

In eight cases the passive pattern is matched by a conditional (e.g. (43)-(44)), and the verb semblé is used three times (e.g. (45)-(46)). This does not happen with active matrices.

(43) a. There are 12 million people in those two countries that are being affected by famine, a famine that is considered to be even worse than the one in 1984-85 in which one million people died.

b. Ces deux pays comptent 12 millions d'affamés. La famine qui sévit cette année serait pire que celle de 1984-1985 qui a fait un million de morts.

(44) a. In no way is it considered to be aid.

b. Cette ouverture de crédit ne saurait en aucun cas constituer de l'aide.

(45) a. Many of the European nations that we have a lot of respect for financially, whose debts are much lower and whose financial management is considered to be more successful, have high standards of living and successful economies, spend considerably larger percentages of their gross domestic product on social programs.

b. Dans bien des pays européens pour lesquels nous avons une grande admiration sur le plan financier, parce que leur dette est beaucoup moins élevée que la nôtre et leur administration financière est, semble-t-il, meilleure, le niveau de vie est élevé, l'économie florissante et une part beaucoup plus considérable du produit intérieur brut est consacrée aux programmes sociaux.

(46) a. Would the Hon. Member comment on how such reports would be applied, if not in a sort of punitive way, which is considered to be ruled out by saying “without preconditions”?

b. Le député aurait-il l'obligeance d'expliquer comment on donnerait suite à ces rapports sinon en appliquant des sanctions, ce qui semble exclu lorsqu'on dit que l'aide est donnée sans condition aucune.
3.2.3. *be believed to*

This turned out to be a very unpopular pattern in the Canadian Parliament. The query for *believed to be/have* only yielded 47 usable matches. These were put next to the first 100 usable hits of the query for *believe+ .. to be*. Four of the passive tokens (8.5%) were unmatched in the French version (e.g. (47)-(48)), as compared to seven percent of the active occurrences (e.g. (49)-(50)). The difference is of course not statistically significant.

<table>
<thead>
<tr>
<th></th>
<th>matched</th>
<th>unmatched</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>passive</td>
<td>43 (91.5%)</td>
<td>4 (8.5%)</td>
<td>47 (100%)</td>
</tr>
<tr>
<td>active</td>
<td>93 (93%)</td>
<td>7 (7%)</td>
<td>100 (100%)</td>
</tr>
</tbody>
</table>

Chi-square (df=1, \(N=147\))=0.10, \(p<.80\)

(47) a. If there is unanimity on the government side about the difficult decisions which have been made, and I can only assert my own position, it is because those decisions are believed to be the right ones and not because they have been imposed.

b. Si les ministériels ont approuvé à l'unanimité les décisions difficiles qui ont été prises, et je ne peux parler qu'en mon nom personnel, c'est parce que ces décisions étaient justifiées et non parce qu'elles nous ont été imposées.

(48) a. Where the police have reasonable grounds to believe that it is not in the public interest for the individual who is believed to be in possession of the firearms to retain them in his possession, there are two possible courses of action.

b. Quand la police a de bonnes raison de croire, dans l'intérêt du public et de la personne concernée, que cette personne ne devrait pas conserver les armes à feu qu'elle a en sa possession, deux recours s'offrent à elle.

(49) a. That is why we have done a report that contains what we believe to be the appropriate legal language to implement all of these provisions.

b. C'est pour cette raison que nous avons rédigé le rapport en termes juridiques pour accélérer l'application de toutes ces dispositions.

(50) a. I am surprised by the remarks of the hon. member who just spoke because *I believe the bill to be* great fraud.

b. J'ai été surpris des remarques de l'honorable député qui vient de prendre la parole parce que ce projet de loi est une grande fraude vis-à-vis les Canadiens.

However, three of the passive patterns are matched by conditionals (e.g. (51)-(52)), whereas none of the active ones are.
(51) a. The role of Parliament is believed to have existed from the year 1265 A.D., when the Commons was first summoned by Simon de Montfort for the purpose of discussing and raising new taxes.

b. Le rôle du Parlement aurait été établi en l'an 1265, lorsque Simon de Montford a convoqué le premier parlement dans le but de discuter et de prélève de nouveaux impôts.

(52) a. They also help Canadian agencies contact the appropriate jurisdictions in the United States in searching for missing children believed to be in the U.S.

b. Il aide également les organismes canadiens à entrer en rapport avec les instances compétentes aux États-Unis pour retrouver les enfants disparus qui auraient pu passer la frontière.

3.2.4. BE said to, BE thought to and BE reported to

As I have already indicated, in the case of say, think and report there is no point in comparing passive and active matrices, for these verbs either do not or only rarely occur in active matrices (see Table 1). In the Canadian Hansard only two instances were found of active THINK, none of course for SAY, and none either for REPORT. There were 118 occurrences of said to be/have, of which 15 instances (or 12.7%) were unmatched in the other language; 68 occurrences of thought to be/have, five of which (or 7.3%) were unmatched; and 102 occurrences of reported to be/have, of which 14 (or 13.7%) were unmatched.

However, though the possibility of comparison with active matrices is absent, figures for say and report do seem to show up the importance of the French conditional as an “equivalent” of passive matrices. Out of a total of 118 occurrences of said to be/have, ten are matched by conditionals (=8.5%) (e.g. (53)-(54)), and for reported to be/have this is the case in no less than half of all instances (51 cases out of a total of 102) (e.g. (55)-(56)).

(53) a. For instance, two major shipyards operated by the Mitsui and Nippon Kokan corporations are said to be currently discussing the possibility of jointly reducing the capacities in that order.

b. Entre autre, deux grands chantiers maritimes, exploités par les sociétés Mitsui et Nippon Kokan, discuteraient présentement la possibilité de réduire conjointement leurs capacités selon cet ordre de grandeur.

(54) a. PVY-N was said to be found in varieties which were PVY-N-free last year.

b. Apparemment, on aurait identifié le virus dans des variétés qui étaient saines l’an dernier.17

(55) a. The total biomass, estimated at 1.2 million tonnes in 1990, is reported to have dropped to 780,000 tonnes in 1991, while during the same

17 Note the combination of the conditional with the adverb apparemment in this example.
period the spawning population fell from 270,000 tons to 130,000 tonnes.

b. La biomasse totale, estimée à 1,2 million de tonnes en 1990, serait passée à 780 000 tonnes en 1991; la population de reproducteurs est passée, dans la même période, de 270 000 tonnes à 130 000 tonnes.

(56) a. The Minister is reported to have stated, “I and the Minister of Health, Mr. Epp, were made aware of the symptoms where some people became ill about a week ago and we took immediate action to send a notice to the producers of Prince Edward Island…”

b. Apparemment, le ministre aurait déclaré: «Moi-même et le ministre de la Santé, M. Epp, avons été mis au courant des symptômes et des cas d'empoisonnement il y a environ une semaine et nous avons immédiatement pris des mesures pour envoyer un avis aux producteurs de l'Île-du-Prince-Édouard...»

Interesting as well is that in five cases said to be/have is matched by an adverb, viz. apparentement (e.g. (54) and (57)), prétendument, (58) or supposément, (28). Apparemment is also used twice to match reported to be/have (viz. (56) and (59)).

(57) a. Tour organizers are said to be working hard to improve the show of the advance performance in Florida last week because the Prime Minister did not meet expectations when he met Mickey Mouse.

b. Apparemment, les organisateurs de la tournée travaillent d'arrache-pied pour améliorer le spectacle, dont nous avons vu l'avant-première en Floride la semaine dernière, parce que la performance du premier ministre, lors de sa rencontre avec Mickey, a été décevante.

(58) a. I would like the hon. gentleman to explain to me where all this Atlantic cod that Chile is said to be exporting to Canada is. What is the volume of it and how did Chile get it in the first place, since Chile has no trawlers fishing in the northwest Atlantic and has never appeared as far as I know in the northwest Atlantic?

b. J'aimerais que le député m'explique où est cette morue de l'Atlantique que le Chili exporte prétendument au Canada, quel est le volume de ses exportations et, avant tout, comment le Chili a obtenu cette morue, puisque ce pays n'a pas de chalutiers dans le nord-ouest de l'Atlantique et ne s'y est même jamais montré, que je sache.

(59) a. At page 10482 of Hansard in the second column while the Prime Minister (Mr. Mulroney) was responding, the Hon. Member for Oshawa (Mr. Broadbent) is reported to have stated:

b. Comme on le voit dans la deuxième colonne de la page 10482 du hansard, pendant que le premier ministre (M. Mulroney) répondait à une question, le député d'Oshawa (M. Broadbent) a apparentement déclaré:

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18 See the previous note.
Three times either the verb *paraître* or the verb *sembler* matches *said to be/have* (e.g. (60)-(61)), three times as well in the case of *thought to be/have* (e.g. (62)-(63)), and nine times in the case of *reported to be/have* (e.g. (64)-(65)).

(60)  a. It seems strange to us that at a time when education and skilled developed are *said to be* a priority of this government, that they are promoting a tax initiative that could reduce participation in our post-secondary institutions.

b. Il nous paraît bizarre qu'au moment où, paraît-il, l'enseignement et l'acquisition de compétences sont une priorité pour le gouvernement, on présente un projet de taxe qui pourrait réduire la participation dans nos établissements postsecondaires.

(61)  a. The 19th Century British Speaker, Arthur Wellesley Peel, *was said to be* able to quell disorder by rising in his majesty and fixing the offenders with a steely glare.

b. Au XIXe siècle, le président britannique Arthur Wellesley Peel pouvait, semble-t-il, calmer le désordre en se levant majestueusement et en fixant les coupables de son regard d'acier.

(62)  a. I am assured by my health experts and environmental advisers that the people themselves *are not thought to be* at risk.

b. Mes conseillers en matière de santé et d'environnement m'assurent qu'elle ne *semble* courir aucun danger.

(63)  a. Extending a four-year mandate used to be reserved for critical times such as a war and so on when it *was thought to be* unwise to have an election.

b. Généralement, un gouvernement ne prolonge un mandat de quatre ans que durant une période critique, pendant une guerre ou lorsqu'il *semble* malavisé de tenir des élections.

(64)  a. We are very concerned about the safety and security of the 600 Canadians who *are reported to be* in China.

b. Nous craignons beaucoup pour la sécurité des 600 Canadiens qui se trouvent, paraît-il, en Chine.

(65)  a. In looking at the New York model, the results of this amendment *are reported to be* impressive.

b. Dans le cas de l'État de New York, *il semble que* les résultats de l'adoption de cette disposition soient impressionnants.

3.3. Discussion

If it is accepted that when translators consistently leave a specific linguistic expression untranslated, or consistently insert this expression in the absence of an obvious trigger in the source text, such a consistency reveals that for the language user the expression does not constitute a crucial element of the message being conveyed, then the results presented in section 3.2 support the hypothesis formulated in section 3.1. In the two cases where there were enough instances of both the
passive and the active pattern, i.e. in the combinations with FIND and CONSIDER, the passive pattern is more often unmatched in the French texts than the active pattern in a statistically significant way. I consider this to be evidence that for the language user such passive patterns are not part of the main predication of their sentences, which supports their analysis as auxiliary-like elements.

If, in addition, it is accepted that a) the French conditional as used in the examples, b) French adverbs like apparemment, prétendument and supposément, and c) the French verbs paraître and sembler as used in the examples, are all linguistic expressions of an evidential nature, and if it is accepted that the repeated occurrence of such linguistic expressions as matches of the passive pattern reveals that for the language user this pattern is also evidential in nature, then this part of the above results also supports the hypothesis.

None of the quantitative data may at first sight be overwhelming, but this is only to be expected since this kind of evidence hinges on the notion of incongruence, of which low frequency is a defining characteristic. Given translators’ propensity to produce congruent translations, effected by the influence of source language forms on target language choices, be it benign or malignant (in the latter case, referred to with the term “translationese”, cf. Gellerstam 1996),19 the very presence of a systematic incongruence, however small, must be seen to be significant, and all the more supportive of the hypothesis for which it is adduced as evidence.

4. Concluding remarks

To date, translation corpora have mainly been used a) in the domain of translation as a source of input for translation workbenches, and b) in linguistics as an empirical base for contrastive analysis (for a more detailed list of their uses and possibilities for linguistics, see Aijmer & Altenberg 1996: 12). A reported risk of using translation corpora for linguistic research is that one is testing the performance of the translator rather than comparing languages (Lauridsen 1996: 65; Aarts 1998: ix-x), or that one is contrasting “ordinary” language with “translated” language, which might well have regularities of its own (Baker 1999), but the research illustrated in this article is not an exercise in contrastive analysis: comparing languages is not our first concern here. Instead, it is exactly the translators’ performance, not so much as good translators but as language users, which is of interest to the present investigation. In other words, the translator is used as linguistic informant. In fact, in more ways than one, one could not think of a better kind of informant, for there is no artificial experimental context and the “subjects” are completely unaware of their role (see also Dyvik 1998: 51). The problem of the “observer’s paradox” (how to observe without changing the context of what should be observed) does not arise, therefore.

Of course, translators are free spirits, free to leave out, add and change things in their translations, but rather than pose a problem for using translations as linguistic evidence, consistency in syntactic and lexical discrepancies between source and target texts is precisely what this kind of evidence hinges on. It must be emphasized, however, that consistency is very much the operative word here. The linguist using this kind of evidence is only interested in the lexicogrammatical choices shared by a community of translators, not in the idiosyncratic choices of individual translators. Consistency in incongruous translations is treated as symptomatic of a particular interpretation and consistent interpretations are treated as revelatory of the nature of the interpreted elements.

References

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Translations as evidence for semantics


Chapter 8

The be said to construction in Late Modern English

1. The be said to construction and auxiliarization

Believe-type verbs, as they have come to be known, i.e. verbs that display the alternation between a that-clause (1) and an accusative and infinitive complement (2), combine much more frequently with the infinitival complement as passives (2b) than as actives (2a) (see, e.g., Quirk 1965; Postal 1974:305; Bolinger 1977:129). On average, accusative and infinitives are preceded by passive matrix clauses at least three times more often than by active matrices, but some believe-type verbs never occur as actives before infinitives (most notably, say) and some do so only very rarely (e.g., report, allege and think) (Noël 1998, 2001).

(1) Although the seasoning of foods is a very personal matter, I believe that it is preferable to add salt during cooking to benefit the developing flavours and not at the table, where the tongue will distinguish the undissolved salt added to the food. (ABB 1053)

(2) a. The Ocean is calm, so calm you could believe it to be lacquered wood rather than water and that if you were in a hurry you could leave the boat and walk to shore. (A6T 1622)

b. Australian Mutual Provident executives were yesterday believed to be mounting plans for a takeover which could be one of the largest acquisitions made in the British life insurer sector. (A1E 427)

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2 All examples in this section are taken from the second version (the so-called “World Edition”, released in December 2000) of the 100-million-word British National Corpus (BNC). In the source code that follows each example the three positions before the space identify the excerpt it was extracted from (which can be looked up in Burnard 1995); the number following the space is the line number of the example within the excerpt.
This paper is about the passive pattern exemplified in (2b), which I will here call the be said to construction for the simple reason that be said to is its most frequent representative (see Table 1 in Noël 1998 and 2001).

The preponderance of passive over active matrices can in part be explained with reference to information structure and the thematic progression of texts (Noël 1998), but can also be argued to derive from the grammaticalization of some representatives of the pattern into evidential auxiliaries. A first careful suggestion to this effect was made by Bolinger (1974:82), who characterized the pattern as “one of many kinds of subordinating adverbializations, tending in the direction of auxiliary status”. The suggestion was repeated by Mair (1990:115), who offers the paraphrase that in sentences like (2b) “the logically superordinate predication has been […] downgraded — to the point that it outwardly resembles the semi-auxiliary or catenative component within a complex verb phrase”. This in turn was rephrased by Meyer (1997:156-157), who writes that “[t]he main function of such constructions seems to be a redistribution of information within the sentence, with the result of “upgrading” […] the embedded non-finite verb at the cost of the passivized matrix verb: The former comes to resemble a main verb in a complex verb phrase, with the latter playing a role resembling that of an auxiliary.” I myself have argued (in Noël 2001) that a) these passive patterns conform to the three relevant parts of Anderson’s (1986:274) four-part definition of evidentials — i.e. they show the kind of justification for a factual claim which is available to the person making the claim, they are not themselves the main predicate of the clause, and they have the indication of evidence as their primary meaning — and that b) when checked against a list of characteristics traditionally attributed to auxiliaries, they can be shown to display a fairly high degree of “auxiliariness”, similar to that of be going to and be able to. I used three criteria from grammaticalization theory to support my claim that some representatives of the pattern are more likely to have gone through a grammaticalization process: 1) some representatives of the pattern are much more frequent than others, be said to, be thought to, be considered to, be found to and be believed to together accounting for over half of all occurrences; 2) some representatives more easily combine with lexical verbs than do others and seem to have dropped the strong preference of accusative and infinitive complements for either the verb be or (perfective or possessive) have, i.e. they seem to have expanded their distribution — be said to, be thought to and be found to do this fairly easily, as do be known to and be shown to; and 3) the freedom to choose between active and passive patterns seems to be severely reduced with some matrix verbs, the passive pattern having a disproportionately high occurrence, which can be taken to be an indication that these passives have developed a special use of their own — be reported to and be alleged to have a frequency of occurrence that is ten times the size of the average proportion of actives to passives, and be said to of course no longer has an active counterpart.

My contention is therefore that frequently used types of passive matrices preceding accusative and infinitives have turned into auxiliary-like function words with an evidential meaning, i.e. they signal that the writer is not the (sole) judge of the factuality of his/her statement by calling in an unspecified source, from whose implied existence the relative factuality of the statement can be inferred. To allow the reader to empathize with this characterization, here are a few more examples:
Richard Feynman, said to be the greatest theoretical physicist of modern times, stated that no-one understands quantum mechanics. (AJV 822 [The Daily Telegraph])

The EFA radar contract is thought to be worth around £1.5 billion to the consortium which wins the contract. (A9D 420 [The Guardian])

Inability to select the right people is considered to be one of the major weaknesses of British management, a weakness with a hidden cost of many millions of pounds a year. (BNA 1263 [How to interview and be interviewed])

It is a cruel irony of the Battle of Verdun that the outlying forts that Joffre, deeming them useless, had stripped of their guns, were found to have withstood constant bombardment by both sides for many months almost unscathed. (CLX 860 [Great battles of World War I])

Gómez is one of countless civilians believed to have been extrajudicially executed since 1980 by the military or “death squads” linked to them. (CFG 371 [Amnesty])

In dry and settled weather conditions it is quite safe to leave gliders out overnight. However, permanent parking outside in all weathers has been shown to cause rapid deterioration to the finish of all non-metal gliders. (A0H 225 [Gliding safety.])

Levels of dioxins in foods such as meat, fish and oils were slightly higher than in other foods, explained by the fact that dioxins are known to accumulate in fatty tissue. (BMK 470 [Chemistry in Britain])

Removal of water through artesian wells is held to be the reason why the tower began going off at an angle soon after building work began in 1174. (AHX 44 [The Daily Telegraph])

NOW YOU’VE stopped laughing at the idea of Kevin Costner in tights, you can have a chuckle at the cast rumoured to be lined up for his Robin Hood movie Prince Of Thieves — Danny DeVito (above) as Friar Tuck, either Patsy Kensit, Emily Lloyd or Imogen Stubbs as Maid Marian and as Robin’s big buddy Little John, John Goodman, who is reported to have been paid $750,000 just to stay interested in playing Fred Flintstone while the producers look for a script. (ACP 347 [The Face]).

A FUND standing at about £200,000 which was raised to give aid and comfort to homecoming British prisoners after the Second World War is alleged to be growing in direct proportion to the number of old soldiers dying without ever seeing a penny of it. (AIJ 132 [The Independent])

These examples seem to suggest that the be said to construction is typical of written, expository texts, though its distribution over different genres has so far not been systematically investigated. Nor has its diachronic development been looked at. If indeed the frequently used representatives of the construction are the product of a grammaticalization process, then it should be possible to observe an increase in their frequency in the course of the history of English, since grammaticalization necessarily results in proliferation (Lehmann 1995[1982]: 142; Thompson and Mulac 1991:

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3 In adnominal clauses without a relative pronoun the BE part of the matrix is elided.
319; Bybee et al. 1994: 8; Tabor and Traugott 1998: 229): grammaticalized items have a certain usefulness in discourse and this is reflected in their frequency (Bybee and Hopper 2001: 19). This paper will make a start in answering both the distribution and the evolution question by looking at how the construction is represented in the ARCHER corpus.

2. The be said to construction in the ARCHER corpus

ARCHER — A Representative Corpus of Historical English Registers — is particularly suited for studying distribution across genres through time, consisting as it does of seven 50-year snapshots (starting in the middle of the 17th century and leading up to the end of the 20th) of nine genres (drama, fiction, journals/diaries, legal opinions, personal letters, medical prose, scientific prose, newspaper reports and sermons), each snapshot comprising around 20,000 words. I queried the corpus for the ten types of the be said to construction that were mentioned in the previous section: be said to, be thought to, be considered to, be found to, be believed to, be shown to, be known to, be held to, be reported to and be alleged to. Table 1 offers an overall view of the spread of the construction over time and over different genres, i.e. it does not distinguish between types, but presents the total number of tokens of all types found in each genre in each 50-year period.

Table 1: The overall spread of the be said to construction over genres and over time

<table>
<thead>
<tr>
<th>Genre</th>
<th>Total per period</th>
<th>1650-1699</th>
<th>1700-1749</th>
<th>1750-1799</th>
<th>1800-1849</th>
<th>1850-1899</th>
<th>1900-1949</th>
<th>Total per genre</th>
</tr>
</thead>
<tbody>
<tr>
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<td>17</td>
<td>24</td>
<td>41</td>
<td>39</td>
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<td>42</td>
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<td>1</td>
<td>1</td>
<td>4</td>
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<td>3</td>
<td>2</td>
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</tr>
<tr>
<td>journals</td>
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<td>0</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
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<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>medical</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>8</td>
<td>15</td>
<td>5</td>
<td>12</td>
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<td>5</td>
<td>10</td>
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<td>13</td>
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<td>9</td>
</tr>
<tr>
<td>science</td>
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<td>6</td>
<td>5</td>
<td>1</td>
<td>9</td>
<td>5</td>
<td>9</td>
<td>11</td>
</tr>
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<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For more elaborate descriptions of the corpus, see Biber et al. (1994) and Biber and Finegan (1997).

The empty cells in this and subsequent tables indicate that there are no British legal texts in the ARCHER corpus, and no American science texts. There are, however, American legal texts for all seven 50-year periods. The asterisks next to the figures in the legal row of the tables indicate that these figures pertain to American texts, not British ones.
Among the observations that can be made, the following stand out the most:

1. The *be said to* construction predominantly occurs in news texts and texts of a scientific nature. Together, newspaper reports, medical prose and scientific prose account for 75% of all tokens. In personal letters, drama and sermons the construction hardly occurs at all. In other words, the construction is typical of certain formal types of written genres, and very untypical of informal letters and of what Biber et al. (1994: 3) and Biber and Finegan (1997: 255) call the “speech-based registers” of the ARCHER corpus (drama and sermons).

2. Though the construction is not new to the Late Modern English period, it has grown much more popular during that period. In the British texts the number of tokens rises from 37 in the 18th-century part of the corpus to 76 in the 19th-century part and 85 in the 20th-century part. In the American texts there is an increase from 24 tokens in the 18th-century (50-year!) part to 30 and 33 in the 19th and 20th-century (50-year) parts, respectively. In both regional variants, therefore, the sharpest rise takes place in the 19th century.

Turning our attention to individual types of the construction, we notice that more than half of all tokens are instances of either of two types, *be said to* (88 tokens = 28%) and *be found to* (90 tokens = 29%), which to a large extent have a complementary distribution, the former being most typical of news reports, the latter primarily occurring in texts of a scientific nature (see Tables 2 and 3).

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Table 2: The spread of the type *be said to*

<table>
<thead>
<tr>
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<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>drama</td>
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<td>BE</td>
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</tr>
<tr>
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<td>1</td>
</tr>
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<td>2</td>
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<td>8</td>
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<td>0</td>
<td>0</td>
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<td>1</td>
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<td>17</td>
<td>16</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>
What is striking in Table 2 is that there seems to have occurred a decline in the popularity of *be said to* in the course of the last century. Table 1 has shown that this is not matched by a fall-off in the use of the construction as a whole, so it must be that other types have to a certain extent taken over the role of *be said to*. There is no space here to present tables for all ten types, but Tables 4 and 5 do show that as of the second half of the 19th century *be believed to* and *be reported to* became fairly popular in newspapers.

### Table 4: *be believed to*

<table>
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<th></th>
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</table>
Table 5: be reported to

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<th>1750-1799</th>
<th>1800-1849</th>
<th>1850-1899</th>
<th>1900-1949</th>
<th>Total per genre</th>
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<td>AE</td>
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<td>0</td>
<td>1</td>
<td>3</td>
<td>15</td>
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</tbody>
</table>

Table 6 suggests that in that same period there was also a new introduction in science-oriented texts: be shown to.

Table 6: be shown to

<table>
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<tr>
<th></th>
<th>1650-1699</th>
<th>1700-1749</th>
<th>1750-1799</th>
<th>1800-1849</th>
<th>1850-1899</th>
<th>1900-1949</th>
<th>Total per genre</th>
</tr>
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<td>BE</td>
<td>AE</td>
<td>BE</td>
<td>AE</td>
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</tr>
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<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

3. Conclusion

With less than 1.8 million words, the ARCHER is not a large corpus, and when used to investigate individual constructions, it cannot, therefore, yield an overwhelming number of examples. Nevertheless, the 300 plus tokens produced by our queries for

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7 Not surprisingly, the original compilers of the corpus themselves have only used it for so-called “multi-dimensional” comparisons, in which each dimension comprises a group of often disparate linguistic features (see especially Biber and Finegan 1997).
the *be said to* construction do allow a few tentative conclusions about its evolution in different Late Modern English genres.

First, though the construction is not new to Late Modern English, its frequency of occurrence has increased in the course of the last four centuries. The model for the construction seems to have been *be said to*, since it is the type most frequently used at the start of the period. Its popularity fell back in the last century, however, in favour of types of the construction that seem only to have been properly introduced in the course of the period, *be found to*, *be believed to* and *be reported to* seeing a sharp rise in their frequency in the 19th century.

Second, there is an obvious preference for certain types of the construction in certain genres, newspaper reports preferring *be said to*, and later on *be believed to* and *be reported to*, and texts in the scientific realm displaying a preference for *be found to*, later on joined by *be shown to*. There is no sign of a spread of the construction, or of any of its types, across their original genre boundaries. The construction also remains virtually absent from the so-called speech-based and less formal written registers throughout the period. Spoken English disposes of its own set of evidential expressions, of course, including *I think*, *I guess*, and at one time also *methinks* (see e.g. Aijmer 1997, Palander-Collin 1999, Simon-Vandenbergen 2000, Thompson and Mulac 1991), though these seem to cater for entirely different needs.

The frequency data from the ARCHER corpus therefore provide support for the hypothesized development of a specialized set of evidentials. In addition, however, they also point to the relevance of constructions in grammaticalization processes (see also Bisang 1998).

References


The be said to construction in Late Modern English


